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UNITED STATES DISTRICT COURT
DISTRICT OF MINNESOTA

ANDREW YECKEL, Plaintiff, v. JEFFREY DERBY and REGENTS OF THE UNIVERSITY OF MINNESOTA, Defendants.	)	Civil Action No. JURY TRIAL REQUESTED

COMPLAINT

Plaintiff Andrew Yeckel ("Yeckel") for his Complaint against Defendants Jeffrey Derby and Regents of the University of Minnesota (collectively "Defendants") hereby allege as follows:

THE PARTIES

1. Plaintiff Yeckel is an individual with his residence at 3414 31st Avenue South, Minneapolis, MN 55406.

2. Upon information and belief, Defendant Jeffrey Derby ("Derby") is an individual with his residence at 7931 Tierneys Woods Road, Minneapolis, MN 55438 and his office at 421 Washington Avenue Southeast, 239 Amundson Hall, Minneapolis, MN 55455.

3. Defendant Regents of the University of Minnesota ("the University") is a public institution of higher education and research created by charter and perpetuated by the Constitution of the State of Minnesota, Article XIII, Section 3.

JURISDICTION AND VENUE

4. This action arises under the Copyright Act, 17 U.S.C. § 101 *et seq*.

5. This Court has subject matter jurisdiction over this action pursuant to 28 U.S.C. §§ 1331, 1338.

6. This Court has personal jurisdiction over Defendant Derby because, upon information and belief, Derby is a resident of Minnesota. Derby is also employed by the University which is located in Minnesota, and the alleged copyright violations occurred in Minnesota and caused injury to Yeckel giving the Court personal jurisdiction over Derby even if he is a nonresident under Minn. Stat. § 543.19 and the Due Process Clause of the Fourteenth Amendment to the United States Constitution.

7. This Court has personal jurisdiction over Defendant University because it is a Minnesota institution created by charter and perpetuated by the Constitution of the State of Minnesota, Article XIII, Section 3.

8. Venue is proper in this Court pursuant to 28 U.S.C. §§ 1391, 1400.

BACKGROUND

9. Yeckel is currently an independent researcher who develops algorithms for computational fluid dynamics and heat and mass transport in multiphase systems with free boundaries.

10. In 1991 Mr. Ralph Goodwin ("Goodwin") began developing a software program to simulate problems in multiphase fluid dynamics having free surfaces with capillarity. Yeckel joined Goodwin in 1992 to expand the code to include heat and mass transport and other physical phenomena.

11. By the end of 1993 Yeckel and Goodwin had developed a substantially complete multi-physics software program that already possessed all of the core elements and most of the

features found in the final version completed by them in 2014. That software program became known as The Old Cats2D.

THE ASSERTED COPYRIGHTS

12. Yeckel is the owner of the copyright in *The Old Cats2D*, U.S. Copyright Registration No. TXu 2-056-546, effective March 31, 2017. (Exhibit A.)

13. The Copyright Registration identifies the authors of The Olds Cats2D as Yeckel and Goodwin.

14. Since at least 1994, Yeckel and Goodwin have provided notice of their rights in this code:

- The 1994 user manual for the code, at that time called Charisma, credits Yeckel and Goodwin as the authors and provides a copyright notice identifying Yeckel and Goodwin as the copyright owners. (Exhibit B (excerpts from 1994 manual).)
- Since at least 1994, a copyright notice has appeared in the source code and splash screen associated with code now known as The Old Cats2D.

15. Yeckel and Goodwin continued to provide notice of their rights in this code through 2014. A copyright notice appears in the source code and splash screen associated with The Old Cats2D, and the manual for The Old Cats2D from 2014 (then simply referred to as Cats2D) identifies Yeckel and Goodwin as authors and again provides a copyright notice identifying Yeckel and Goodwin as the copyright owners. (Exhibit C (excerpts from 2014 manual).)

16. From initial development through present, Yeckel and Goodwin have not published The Old Cats2D or otherwise made it available commercially or to the general public.

17. All licensees have been notified in a timely fashion not to distribute the code without permission from Yeckel and Goodwin.

18. On March 31, 2017, Goodwin assigned his rights in The Old Cats2D to Yeckel. (Exhibit D.)

DEFENDANTS' INFRINGING ACTIVITY

19. In January of 1994 Yeckel began working in a research group run by Derby at the University of Minnesota.

20. Shortly after starting in Derby's research group, Yeckel began using The Old Cats2D in his research and copied The Old Cats2D onto a computer in Derby's lab. Yeckel also copied The Old Cats2D onto a computer in the Minnesota Supercomputer Institute at the University of Minnesota. Both of these copies of code were located in a user account that only Yeckel had access to. Around that time, Yeckel expressly informed Derby that he and Goodwin owned rights to The Old Cats2D code and stated that he and Goodwin would be maintaining ownership of that code. At that time, Derby agreed that Yeckel and Goodwin owned the code.

21. Indeed, Yeckel and Derby wrote a paper that same year (published in 1995) which cited the code, again then called Charisma, and identified the authors of the code as Yeckel and Goodwin. (Exhibit E at note 24 (excerpt of 1995 publication by Yeckel and Derby).)

22. In approximately 2000-2001, graduate student(s) in Derby's research group began using The Old Cats2D with permission, and an implied license, from Yeckel. Yeckel provided those student(s) with temporary access to his user account, and the student(s) then copied The Old Cats2D to their own user accounts.

23. Graduate students in Derby's research group continued using copies of The Old Cats2D, again with permission and an implied license from Yeckel, through 2014 when Yeckel

left Derby's research group. During that time period the students either copied The Old Cats2D from Yeckel's user account to their own user accounts or Yeckel emailed a copy of the code to the students.

24. Derby's graduate students, including at least Jeff Peterson, Mia Divecha, Kerry Wang, Chang Zhang, John Roerig, and Scott Dossa, continued using copies of The Old Cats2D after Yeckel's departure in 2014 and, upon information and belief, at least some graduate students in Derby's research group currently continue to use and/or modify those copies of The Old Cats2D.

25. Use and/or modification of copies of The Old Cats2D by Derby's graduate students was with Yeckel's permission and an implied license until April 3, 2017 when, as explained below, Yeckel revoked his permission and implied license.

26. On January 23, 2017, Yeckel, through counsel, sent Derby a letter again informing him that Yeckel and Goodwin held the copyright in the relevant software and further informing him that only Yeckel and Goodwin had the exclusive right to reproduce, distribute, and prepare derivative works based upon the original software. (Exhibit F.)

27. On April 3, 2017, Yeckel informed Derby via email that Goodwin had assigned his copyright rights in The Old Cats2D to Yeckel and that Yeckel was revoking his implied license to Derby and Derby's research group members in The Old Cats2D. Yeckel requested Derby cease and desist from using the copy of The Old Cats2D, destroy that copy, and inform others to do the same. (Exhibit G.)

28. On April 3, 2017, Yeckel also informed Derby's graduate students of the same.

29. On April 3, 2017, Yeckel sent the University an email informing the University that he was the sole owner of the relevant software, that he had revoked all permission to use the

code by Derby and Derby's research group members, and that he had informed Derby and his research group members to destroy any copies of the code in their possession. Yeckel expressly requested that the University ensure Derby's compliance. (Exhibit H.)

30. On April 5, 2017, the University responded to the January 23, 2017 letter sent to Derby by Yeckel's counsel and to Yeckel's April 3, 2017 letters to Derby, Derby's graduate students, and the University. The University's response alleged:

> The version of Cats2D now being run in Professor Derby's lab, we understand, was derived from software that Dr. Yeckel first developed prior to his university employment. The current version of Cats2D was developed by Dr. Yeckel and others in the lab, while they were acting in their university employment. To be more specific: the university employed Dr. Yeckel for over 20 years, first as a post-doc (1994-1995) then as a research associate (1995-1999) and finally, when the [sic]he left the university, as a senior research associate (1999-2014). During his employment, Dr. Yeckel authored several, significant modifications to Cats2D. Those modifications were merged into the original version of Cats2D, resulting in a new, inseparable program. That program is a joint work, authored by Dr. Yeckel as an individual and the university, acting through Dr. Yeckel as an employee. The university and Dr. Yeckel, consequently, jointly hold the copyright in Cats2D. As such, the university is free to use or permit others to use Cats2D as it wishes. It does not need Dr. Yeckel's permission.
> . . .
> His work . . .was . . . a work made for hire, granting the university complete ownership of the developments he made.

(Exhibit I.)

31. The University's own policies explain that "[t]he University shall maintain the strong academic tradition that vests copyright ownership of academic works in the faculty" and that "[c]onsistent with academic tradition, University faculty and students shall own the copyright in the academic works they create, except for academic works described below in Section IV, subd. 2(b)-(e), or unless otherwise provided in written agreement between the creator(s) and the University." (E.g., Exhibit J (the University's Copyright Policy from 2007).)

32. None of the exceptions outlined in the University's policy apply to Yeckel's work (see Exhibit J at Section IV, subd. 2(b)-(e)), and there is no written agreement between Yeckel and University in which Yeckel gave his rights to the University.

33. Furthermore, during the time-period in which Yeckel worked in Derby's research group at the University, only minor changes and/or additions were made to the code, and those changes and/or additions were not made within the scope of Yeckel's employment; rather, they were largely the result of work done by Goodwin—a non-University employee—or work done by Yeckel as an outside consultant for non-party business(es).

34. Throughout Yeckel's time in Derby's research group from 1994-2014 and while Derby's graduate students were using copies of The Old Cats2D, papers published by Derby and his graduate students credit Yeckel and Goodwin for The Old Cats2D. (E.g., Exhibits E at note 24 (excerpt from 1995 publication), K at note 22 (excerpt from 2003 publication), L at note 41 (excerpt from 2012 publication).)

35. Publications by members of Derby's research group post-dating Yeckel's departure from Derby's research group through 2017 continued to credit Yeckel and Goodwin for The Old Cats2D. (E.g., Exhibits M at note 72 (excerpt from 2016 publication), N at note 84 (excerpt from 2017 dissertation).)

36. Other publications by researchers unaffiliated with Derby's research group also credit Yeckel and Goodwin for The Old Cats2D. (E.g., Exhibit O at note 7 (excerpt of 2007 publication).)

37. Upon information and belief, despite revocation by Yeckel of their licenses, Derby's graduate students and the University retain copies of The Old Cats2D and continue using and/or modifying those copies for their own advantage.

38. As a result of access to and use of The Old Cats2D, Derby, Derby's research group and graduate students, and the University have profited, *inter alia*, via improved research abilities and publications associated therewith; improved access to funding opportunities and, upon information and belief, increased funding; increased and improved prestige and reputation; and, upon information and belief, increased demand for outside consulting jobs with non-party businesses.

COUNT 1 – COPYRIGHT INFRINGEMENT OF THE OLD CATS2D BY ALL PARTIES

39. Yeckel incorporates all previous allegations by reference.

40. Yeckel is the sole owner of all right, title, and interest in and to the copyright for The Old Cats2D, as identified by Exhibits A, D.

41. Derby and the University each had notice of Yeckel's rights in The Old Cats2D since at least 1994 via a splash screen notice on The Old Cats2D as well as an express statement by Yeckel to Derby in 1994 informing Derby that Yeckel and Goodwin owned rights to The Old Cats2D code. Derby and the University also had notice of Yeckel's rights in The Old Cats2D based on letters and emails sent by Yeckel and/or Yeckel's counsel on January 23, 2017 and April 3, 2017.

42. Yeckel revoked his permission and any and all implied licenses provided to Derby, Derby's graduate students, and the University via email dated April 3, 2017.

43. Derby and the University continue to possess at least a copy of Yeckel's copyrighted The Old Cats2D.

44. Derby, through his research group member/students, and the University, through Derby and his research group members/students, continue to use and/or modify Yeckel's copyrighted The Old Cats2D.

45. Derby's and the University's continued and unauthorized possession and use and/or modification of Yeckel's copy of The Old Cats2D after his express revocation of his permission and license to the program on April 3, 2017, constitute copyright infringement under the Copyright Act, 17 U.S.C. § 101 *et seq*., and such acts of infringement have been willful

COUNT 2 – VICARIOUS COPYRIGHT INFRINGEMENT OF THE OLD CATS2D BY THE UNIVERSITY

46. Yeckel incorporates all previous allegations by reference.

47. The University, as an employer of Derby and his research group, control and supervise Derby and his group and the activities associated therewith.

48. The University is complicit and has allowed the above described copyright infringement to continue to the University's benefit constituting vicarious copyright infringement and such infringement is willful.

COUNT 2 – VICARIOUS COPYRIGHT INFRINGEMENT OF THE OLD CATS2D BY DERBY

49. Yeckel incorporates all previous allegations by reference.

50. Derby, as head of his research group, controls and supervises graduate students in his lab and members of his research group and their activities.

51. Derby has allowed and benefitted from the above described copyright infringement, and his actions constitute vicarious copyright infringement and such infringement is willful.

PRAYER FOR RELIEF

Wherefore, Yeckel requests that judgment be entered in his favor and against Defendants as follows:

A. Pursuant to 17 U.S.C. § 502, an order permanently enjoining Derby, the University, and all persons in active concert or participation therewith from copying, creating

derivative works based on, using, performing, or otherwise infringing on Yeckel's rights in The Old Cats2D;

B. Pursuant to 17 U.S.C. § 503, an order for seizure to recover, impound, and/or destroy all things infringing upon Yeckel's rights in The Old Cats2D, including any software programs and code Derby, the University, and all persons in active concert or participation therewith may possess;

C. An order that Derby and the University file with this Court and serve on Yeckel, within 30 days of service of this order, a report in writing under oath setting forth in detail the manner in which Derby and the University has complied with the terms of the ordered relief;

D. Pursuant to 17 U.S.C. § 504 or any other applicable provision, an award of actual damages from Derby and the University and a finding of willful infringement by Derby and the University and award of enhanced damages as provided by law.

E. Pursuant to 17 U.S.C. § 504 or any other applicable provision, an award of statutory damages from Derby and the University and a finding of willful infringement by Derby and the University and award of enhanced damages as provided by law.

F. Pursuant to 17 U.S.C. § 505 or any other applicable statute, an award of costs and a finding that Yeckel is the prevailing party and an award of attorneys' fees;

G. An assessment and award of prejudgment and post-judgment interest; and

H. An award of such other relief as deemed appropriate.

JURY DEMAND

Yeckel demands a trial by jury on all issues so triable.

Dated: September 7, 2018

Respectfully submitted,

By: s/ Paige S. Stradley

Paige S. Stradley, No. 393432
John A. Clifford, No. 134181
MERCHANT & GOULD P.C.
3200 IDS Center
80 South 8th Street
Minneapolis, MN 55402
Phone: 612.332.5300

Attorneys for Andrew Yeckel

EXHIBIT A

Certificate of Registration

This Certificate issued under the seal of the Copyright Office in accordance with title 17, *United States Code*, attests that registration has been made for the work identified below. The information on this certificate has been made a part of the Copyright Office records.

Acting United States Register of Copyrights and Director

Registration Number
TXu 2-056-546
Effective Date of Registration:
March 31, 2017

Title

Title of Work: The Old Cats2D

Completion/Publication

Year of Completion: 2014

Author

- **Author:** Andrew John Yeckel
  Author Created: computer program
  Work made for hire: No
  Citizen of: United States
  Year Born: 1961

- **Author:** Ralph Talbot Goodwin
  Author Created: computer program
  Work made for hire: No
  Citizen of: United States
  Year Born: 1956

Copyright Claimant

Copyright Claimant: Andrew John Yeckel [redacted]

Copyright Claimant: Ralph Talbot Goodwin [redacted]

Limitation of copyright claim

Material excluded from this claim: computer program
Previous registration and year: Pending, 2017

New material included in claim: computer program

Rights and Permissions

Name: Andrew John Yeckel

EXHIBIT B

Charisma User's Guide

Ralph T. Goodwin and Andrew Yeckel

Material Processing Simulation
434 Fairlawn Drive, Urbana, IL 61801
2870 Holmes Ave, Minneapolis, MN 55408

Ralph T. Goodwin and Andrew Yeckel
Publisher

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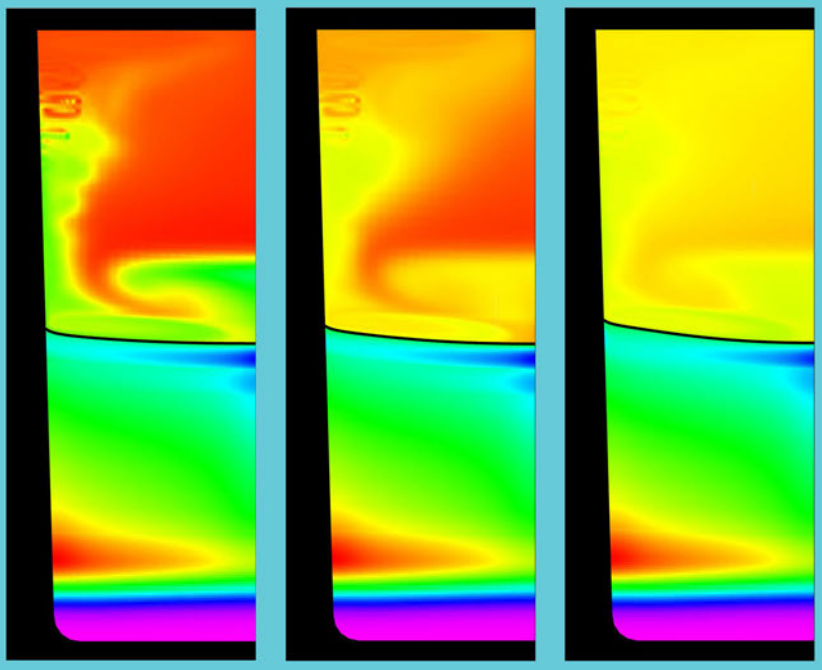
SCO is a trademark of Santa Cruz Operating Systems.
PostScript is a registered trademark of Adobe-Systems Incorporated.
The names of all computer hardware mentioned herein are trademarks of the respective manufacturers.

Contents

EXHIBIT C

CATS2D

CRYSTALLIZATION AND TRANSPORT SIMULATOR



ANDREW YECKEL

RALPH T. GOODWIN

Cats2D

Crystallization and Transport Simulator

Andrew Yeckel
Minneapolis, Minnesota

Ralph T. Goodwin
Minneapolis, Minnesota

Typeset using the LaTeX Documentation System.

Cover image: Zinc distribution in melt (above) and crystal (below) shown after 4, 10, and 25 ACRT cycles have been completed. From: Effect of accelerated crucible rotation on melt composition in high-pressure vertical Bridgman growth of cadmium zinc telluride, A. Yeckel and J.J. Derby (2000) *J. Crystal Growth*, v. 209, 734-750.

July 9, 2015

Contents

EXHIBIT D

COPYRIGHT ASSIGNMENT

March 31, 2017

We, Andrew J. Yeckel and Ralph T. Goodwin, jointly own The Old Cats2D software (copyright registration application case number 1-4716414871).

I, Ralph T. Goodwin, address 3423 Lyndale Ave S, Minneapolis, MN 55408, for good and valuable consideration the receipt and adequacy of which is hereby acknowledged, do hereby assign to Andrew J. Yeckel, address 3414 31st Ave S, Minneapolis, MN 55406, my joint copyrights to The Old Cats2D software, including but not limited to the rights to reproduce, distribute, display, or create derivative works from the software. This agreement takes effect on March 31, 2017. In return I have received from Yeckel $100 cash payment and a non-exclusive perpetual license to use The Old Cats2D and any of its derivative works for my own personal or commercial work.

I, Ralph T. Goodwin, acknowledge that I understand this document and have signed it voluntarily for the purposes stated in it.

Signed Ralph T. Goodwin (assignor)

I, Andrew J. Yeckel, acknowledge that I understand this document and have signed it voluntarily for the purposes stated in it.

Signed Andrew J. Yeckel (assignee)

State of Minnesota
County of Hennepin

This instrument was acknowledged before me on March 31, 2017
by Andrew J. Yeckel and Ralph T. Goodwin.

Signature of notarial officer

Notary Public
Title or Rank

My commission expires: 01/31/2019

JONATHAN ERNEST MAIER
NOTARY PUBLIC - MINNESOTA
MY COMMISSION EXPIRES 01/31/19

EXHIBIT E

ELSEVIER

Journal of Crystal Growth 152 (1995) 51–64

JOURNAL OF CRYSTAL GROWTH

Theoretical analysis and design considerations for float-zone refinement of electronic grade silicon sheets

Andrew Yeckel, Andrew G. Salinger, Jeffrey J. Derby *

Department of Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, Minnesota 55455-0132, USA

Received 29 September 1994; manuscript received in final form 27 February 1995

Abstract

The finite element method is used to solve a detailed model of heat and momentum transport in the vertical float-zone refinement of thin silicon sheets. The model formulation is much like that used to study float-zone refinement of cylindrical ingots, but the dominant physical mechanisms differ because of the much smaller length scale. The curvature of the meniscus remains nearly constant under all conditions due to the dominance of surface tension. The solid–liquid interface deviates considerably from a planar shape, contrary to the assumption of previous studies. The release and uptake of latent heat appear to play only minor roles in determining this shape, which results primarily from the sharp decrease of silicon emissivity upon melting. Strong flow in the melt due to the Marangoni effect is driven by large temperature gradients (O(100 K/cm)) at the melt surface, whereas buoyancy effects are negligible. Effective Reynolds numbers exceeding 10^3 are calculated. Multiple solutions are found under some circumstances. The different solution branches show little difference in the temperature field or free surface shape, but show a large difference in the flow field, which is likely to affect the redistribution of impurities. Transient calculations are used to determine the thickness variation of the sheet during the approach to steady state.

1. Introduction

The "ribbon-to-ribbon" (RTR) process for sheet growth of silicon, introduced in 1976 by Gurtler et al. [1], once was pursued as a method to produce low-cost silicon for photovoltaic applications. The method is illustrated schematically in Fig. 1a. A polycrystalline film, grown by chemical vapor deposition (CVD), is scanned by a laser or other focused heat source to form a narrow molten zone, behind which a large-grained silicon crystal is grown. Research in this area seems to have ceased by the early 1980s, presumably due to stabilization of oil prices and the consequent marginalization of the economic viability of photovoltaic devices. There is a renewed interest in sheet growth, however, based on its possible application to the growth of large substrates of electronic grade single crystal silicon [2]. Conventional ingot growth methods such as Czochralski and float zone are likely limited by the intensity of melt convection, which scales roughly with the cube of the ingot size. Also, ingot growth methods have considerable losses associated with the cutting and polishing of wafers. Neither of these limitations is a factor in sheet growth methods: cutting and polishing losses promise to be greatly reduced, and convection scales with the thickness of the wafer, rather than the diameter. Also, of all the sheet growth methods (see Ciszek [3] for a review) the RTR process is the only one that is crucible-free. The absence of a crucible in

* Corresponding author.

SSDI 0022-0248(95)00088-7

percooling, a potential cause of morphological instability in crystal growth systems, appears unlikely except possibly at very high growth rates. The reason is that heat is supplied directly to the melt zone by radiation, whereas in many other crystal growth systems, heat reaches the growth interface primarily by convection through the melt. The issue of heater design for managing thermal stresses has not been addressed, but strategies for avoiding dewetting or supercooling have a strong bearing on strategies for managing thermal stress, since both are directly related to thermal gradients. The last factor cited, seeding, has not been addressed but is an important consideration.

The tendency to dewet can be reduced by maintaining a melt width that is somewhat wider than the sheet thickness, preferably twice as wide. This locates the solid–liquid interfaces away from the low-gradient region near the melt center. Dewetting also can be discouraged by using a heat source with shorter wavelength, in the near-infrared rather than far-infrared. A small increase in the emissivity of the liquid silicon results in a large increase in the wetting angle. A narrow heater radiation profile also favors high growth rates, but causes higher maximum rates of change of the temperature gradient, which is likely to cause higher local thermal stress.

Unsymmetric heating has a minor effect on the results unless the ratio of power input to each side of the sheet is greater than about two (or less than about one-half), though the plane of the grown sheet is offset somewhat from the plane of the melted sheet. When the sheet is heated from one side only, however, transient integration shows that a melt zone that initially penetrates the sheet can freeze over the unheated side, causing failure of the process at startup.

Redistribution of solutes between the melted and grown sheets has not been considered, but is an important factor in any method of electronic grade silicon production. Multiple solutions are found that exhibit dramatic differences in melt flow, which could be of major significance for solute redistribution. Preliminary results indicate a rich bifurcation structure with at least five solution branches.

Acknowledgments

This work was supported by the National Science Foundation under grant number CTS-9315980 and by SEMATECH under contract number 033006801. Partial support was also provided by the Minnesota Supercomputer Institute and the University of Minnesota Army High Performance Computing Research Center (under the auspices of Army Research Office contract number DAAL03-89-C-0038). The authors express their gratitude for the encouragement provided by F.T. Geyling.

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EXHIBIT F

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An Intellectual Property Law Firm

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Telephone: 612.332.5300
Fax: 612.332.9081
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A Professional Corporation

Direct Contact | 480.725.8806
jclifford@merchantgould.com

January 23, 2017

VIA EMAIL & FIRST CLASS MAIL
derby@umn.edu

Jeffrey J. Derby
Department of Chemical Engineering and Materials Science
University of Minnesota
[redacted]

Re: Cats2D software
Our Ref.: M&G 17653.0001USAA

Dear Dr. Derby:

Our firm represents Andrew Yeckel in intellectual property matters. Our client, along with Ralph Goodwin, authored software known as the Cats2D software. They hold copyright in the work and therefore have the exclusive right to reproduce, distribute, and prepare derivative works based upon the original, among other exclusive rights. These rights are guaranteed by the law at 17 U.S.C. § 106. Copies of the Cats2D software have been provided to colleagues of our client at the University of Minnesota for limited non-commercial internal use only. We have been advised that you are considering releasing a version of the Cats2D software as an open-source software for general use. Doing so would violate the exclusive rights of our client to distribution and reproduction of the work, and would interfere with his ownership of the copyright in the underlying work. Should you release the software you would be violating these rights and would subject yourself to substantial financial liability.

On behalf of our client, we request that you agree in writing that you will not take any action that would violate the rights of our client, including but not limited to publishing the work, releasing it as open-source software, or taking any other action that would lessen the commercial value of the software or diminish the claim of authorship of the work by our client. Please respond to the undersigned within fifteen days of the date of this letter so that we can either put the matter completely to rest with your affirmative agreement, or can take other appropriate action if necessary.

Sincerely,

Jack Clifford

John A. Clifford

EXHIBIT G

REDACTED

[redacted]

April 3, 2017

Professor Jeffrey J. Derby
Department of Chemical Engineering and Materials Science
University of Minnesota

Dear Jeff,

I am the sole copyright holder to the Cats2D, Cats3D, and Partition codes used by your research group. I am exercising my legal right as owner of these codes to revoke all permission to use any of these codes by you, your research group members, and any other members of the public who have gained possession of these codes.

This email means that you must desist from using any of these codes, and must destroy all electronic copies in your possession, and to notify anyone you may have given the code to that they must do the same. I have informed the U's legal and IT security offices to help ensure compliance.

Please note that all variants of these codes extant in your group are encumbered by my copyrights and therefore unusable, even very old versions, or versions that have isolated contributions from other programmers. If it has my name on it, you must destroy it.

As a courtesy I am attaching a tarball of a code written by Hua Zhou that is unencumbered by my copyrights. Pretty much everything else is off limits.

Sincerely,

Andrew Yeckel, PhD

[redacted]

EXHIBIT H

REDACTED

[redacted]

April 3, 2017

Gregory Brown
Sr. Associate General Counsel
University of Minnesota
[redacted]

Dear Mr. Brown,

A few months ago Professor Jeffrey Derby contacted you about a letter written to him by my attorney John A. Clifford of Merchant and Gould concerning ownership of the Cats2D software used by his research group in the Department of Chemical Engineering and Materials Science.

At that time I held joint copyrights to Cats2D with Ralph T. Goodwin. Dr. Goodwin has now assigned his copyrights to me, making me sole owner of Cats2D (see attached). I am also sole copyright holder of two other codes, named Cats3D and Partition. I am exercising my legal right as sole owner of these codes to revoke all permission to use any of these codes by Derby, his research group members, and any other members of the public who have gained possession of these codes.

I have sent emails to Derby and those members of his group known to me instructing them to desist from using any of these codes, to destroy all electronic copies in their possession, and to notify anyone to whom they have given any of these codes to do the same.

I am informing your office and copying this email to Brian Dahlin, Chief Info Security Officer of OIT, because Derby's previous actions indicate that he does not understand or take seriously my copyrights to these codes. I think it is reasonable to ask that an appropriate university authority oversee compliance.

Please note that all variants of these codes extant in the Derby group are encumbered by my copyrights and therefore unusable, even very old versions, or versions that have isolated contributions from other programmers. If it has my name on it, they must destroy it.

Sincerely,

EXHIBIT I

UNIVERSITY OF MINNESOTA

Office of the General Counsel

360 McNamara Alumni Center
200 Oak Street S.E.
Minneapolis, MN 55455-2006

Office: 612-624-4100
Fax: 612-626-9624

Via Electronic Mail

April 5, 2017

John A. Clifford
Merchant & Gould
[redacted]

Re: Cats2D, Cats3D and Partition Software Programs

Dear Mr. Clifford,

Thank you for your letter, dated January 23, 2017, to Professor Jeffery Derby. I am writing to respond.

In your letter, you described Messrs. Andrew Yeckel and Ralph Godwin's claim to certain software named Crystallization and Transport Simulator 2D ("Cats2D") and a concern that Professor Derby was planning to distribute the program publicly without their approval, under an open source license. You admonished him that such a release would violate their copyright in the program. To date, Professor Derby has honored your request and has not openly distributed Cats2D.

On Monday, April 4th, Mr. Yeckel wrote to me, Professor Derby, Professor C. Daniel Frisbie (CEMS Department Head), an official in the university's Office for Information Technology, and all graduate students and post-doctoral associates in Professor Derby's current research group. In his message to me, Mr. Yeckel notified me that he had acquired Mr. Goodwin's interest in Cats2D[1]. He then broadened significantly the claim made in your letter. He demanded Professor Derby and colleagues in his lab to "desist from using any of these codes, to destroy all electronic copies in their possession, and to notify anyone to whom they have given any of these codes to do the same." He also asserted rights in two additional codes, Crystallization and Transport Simulator 3D ("Cats3D") and Partition. We do not believe the university has infringed any of Mr. Yeckel's rights in any of the three programs.

The evidence suggests the university holds a valid copyright interest in Cats2D, Cats3D and Partition.

The version of Cats2D now being run in Professor Derby's lab, we understand, was derived from software that Dr. Yeckel first developed prior to his university employment. The current version of Cats2D was developed by Dr. Yeckel and others in the lab, while they were acting in their university employment. To be more specific: the university employed Dr. Yeckel for over 20 years, first as a post-doc (1994-1995) then as a research associate (1995-1999) and finally, when the he left the university, as a senior research associate (1999-2014). During his employment, Dr. Yeckel authored several, significant

[1] We question the effectiveness of Mr. Goodwin's assignment. To the extent Mr. Goodwin developed modifications to Cats2D while a university employee, he does not have a personal, legal right, title or interest in the copyright in the program.

modifications to Cats2D. Those modifications were merged into the original version of Cats2D, resulting in a new, inseparable program. That program is a joint work, authored by Dr. Yeckel as an individual and the university, acting through Dr. Yeckel as its employee. The university and Dr. Yeckel, consequently, jointly hold the copyright in Cats2D. As such, the university is free to use or permit others to use Cats2D as it wishes. It does not need Dr. Yeckel's permission.
Cats3D is derived from software first developed at the university prior to Dr. Yeckel's joining Professor Derby's lab in 1994. Whatever modifications Dr. Yeckel made to that program were made in the scope of his employment. Partition also was developed during Dr. Yeckel's appointment at the university. He developed it in the scope of his university employment. The evidence suggests that the university, not Dr. Yeckel, holds the copyrights in Cats3D and Partition.

We strongly believe that the university does not need Dr. Yeckel's permission to continue using Cats2D, Cats3D or Partition. His work on the three programs was, in each instance, a work made for hire, granting the university complete ownership of the developments he made.

The university, for itself and its employees and agents, reserves all its and their rights, defenses and claims. None of the statements made in this letter are intended to be, and should not be considered, an admission of fact, liability or violation of law. The university specifically reserves all of its common law and statutory defenses, including, but not limited to, fair use and the remitment of statutory damages under section 504(c)(2) of the federal Copyright Act.

In the future, all communications on this matter should be sent to me.

Please contact me if there are questions.

Sincerely,

Gregory C. Brown

Gregory C. Brown
Sr. Associate General Counsel

GCB/

EXHIBIT J

COPYRIGHT
Adopted: December 14, 2007

UNIVERSITY OF MINNESOTA

BOARD OF REGENTS POLICY

COPYRIGHT

SECTION I. SCOPE.

This policy applies to copyrighted works created by faculty; post-doctoral fellows, researchers, and scholars; students; and other employees of the University of Minnesota (University).

SECTION II. DEFINITIONS.

Subd. 1. Copyright Protection. *Copyright protection* subsists in original works of authorship fixed in a tangible medium of expression, as defined by United States copyright law.

Subd. 2. Work. *Work* shall mean a work protected under United States copyright law.

Subd. 3. Academic Work. *Academic work* shall mean a scholarly, pedagogical, or creative work, such as an article, book, textbook, novel, work of visual art, dramatic work, musical composition, course syllabus, test, or class notes.

Subd. 4. Faculty. *Faculty* shall mean members of the faculty as defined by Board of Regents Policy: *Employee Group Definitions*, along with individuals who are not so defined but who are University employees holding faculty-like appointments (namely, University employees who teach or conduct research at the University with a level of responsibility and self-direction similar to that exercised and enjoyed by faculty in a similar activity). Postdoctoral fellows, researchers, and scholars shall have the same ownership rights as faculty and are covered under this policy.

Subd. 5. Student. *Student* shall mean a registered student at the University.

Subd. 6. Directed Work. *Directed work* shall mean a work agreed upon between the University and faculty creator(s), the creation of which is based on a specific request by the University and which is supported by substantial University resources beyond those customarily provided to faculty in the respective discipline and University unit.

SECTION III. GUIDING PRINCIPLES.

(a) The University's mission articulates a commitment to sharing knowledge through education for a diverse community and application of that knowledge to benefit the people of the state, the nation, and the world. In this spirit, the University encourages faculty and students to exercise their interests in ownership and use of their copyrighted works in a manner that provides the greatest possible scholarly and public access to their work.
(b) The University shall maintain the strong academic tradition that vests copyright ownership of academic works in the faculty.
(c) The University recognizes the importance of intellectual freedom and autonomy in the creation, use, and dissemination of scholarly works.

(d) The University is committed to promoting a culture in which access, exchange, and lawful use of materials are regarded as fundamental to both the process and goals of scholarly inquiry.

SECTION IV. COPYRIGHT OWNERSHIP.

Subd. 1. Ownership of Academic Works. Consistent with academic tradition, University faculty and students shall own the copyright in the academic works they create, except for academic works described below in Section IV, subd. 2(b)-(e), or unless otherwise provided in a written agreement between the creator(s) and the University.

Subd. 2. University Ownership. The University shall own the copyright in the following works created by University faculty, other employees, or students, acting individually or jointly with others:

(a) works created by University employees acting within the scope of their employment, except for academic works created and owned by faculty under this policy;
(b) directed works;
(c) works specially ordered or commissioned by the University and for which the University has agreed, in writing, to specially compensate or provide other support to the creator(s);
(d) works created in connection with the administration of the University; and
(e) works created pursuant to a contract with an outside sponsor that provides University ownership of the copyright in the works.

Subd. 3. Written Acknowledgments. The University and University faculty, other employees, and students shall execute necessary or desirable written instruments or agreements to evidence and protect ownership of copyright and copyright licenses consistent with this policy.

Subd. 4. Ownership under Sponsored and Other Outside Funded Agreements. The ownership of copyright in works created under an agreement with an outside sponsor shall be determined consistent with the terms of the agreement and applicable law.

Subd. 5. Works Created by Independent Contractors. Copyright ownership in works created by independent contractors shall be determined consistent with applicable law and the contract between the University and the independent contractor. In most instances, the University shall enter into appropriate written contracts with independent contractors before services are provided to the University that may result in the creation of copyrighted works.

SECTION V. EXCLUSIONS.

Nothing in this policy shall be construed to preclude the University and faculty and students from entering into written agreements governing the use, licensing, or sharing of licensing revenues with each other with respect to works, whether such works are owned by the University, the faculty, or students under this policy.

Academic

COPYRIGHT

Adopted: December 14, 2007

UNIVERSITY OF MINNESOTA

BOARD OF REGENTS POLICY

SECTION VI. IMPLEMENTATION.

The president or delegate shall implement this policy and maintain appropriate policies and procedures to administer it.

Supersedes: Portions of Intellectual Property adopted October 8, 1999.

EXHIBIT K

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Improved radial segregation via the destabilizing vertical Bridgman configuration

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Abstract

We employ a computational model to revisit the classic crystal growth experiments conducted by Kim et al. (J. Electrochem. Soc. 119 (1972) 1218) and Müller et al. (J. Crystal Growth 70 (1984) 78), which were among the first to clearly document the effects of flow transitions on segregation. Analysis of the growth of tellerium-doped indium antimonide within a *destabilizing* vertical Bridgman configuration reveals the existence of multiple states, each of which can be reached by feasible paths of process operation. Transient growth simulations conducted on the different solution branches reveal striking differences in hydrodynamic and segregation behavior. We show that crystals grown in the destabilizing configuration exhibit considerably better radial segregation than those grown in the *stabilizing* configuration, a result which challenges conventional wisdom and practice.

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Keywords: A1. Computer simulation; A1. Convection; A1. Fluid flows; A1. Mass transfer; A1. Segregation; A2. Bridgman technique

1. Introduction

Dramatic advances in understanding segregation phenomena in melt crystal growth processes have been attained over the past several decades, and it is now well accepted that macroscopic transport phenomena play a crucial role in setting the compositional uniformity of single crystals grown from the melt. However, even though the causes of segregation are relatively well understood, there have been few attempts to optimize or control segregation through changes in process design or operation. This paper presents a new analysis of an old system, with rather surprising outcomes that suggest that there is still more to be learned about segregation in Bridgman crystal growth and how it may be controlled through system design.

The first analyses of compositional segregation attempted to quantify the interactions among convective mixing, diffusion, and the equilibrium partitioning of a species at the melt–solid interface in the context of uni-directional solidification. In the limit of complete mixing in the melt, the Scheil

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EXHIBIT L

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Thermal-capillary analysis of the horizontal ribbon growth of silicon crystals

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ABSTRACT

A thermal capillary, finite element model is developed for the Horizontal Ribbon Growth (HRG) system to study the characteristics of the process and to assess its feasibility to grow silicon sheets. The mathematical model formulation rigorously accounts for mass, energy, and momentum conservation while simultaneously representing capillary physics of the menisci, tracking of the solidification front, and self consistent determination of ribbon thickness. Model results show the potential, with suitable heat transfer design, for the HRG process to achieve the formation of an extended, wedge shaped interface with latent heat dissipation primarily in a direction perpendicular to the pulling direction. These attributes allow the HRG system to achieve higher pull rates under lower thermal gradients than vertical ribbon growth systems. Crystal thickness is predicted to decrease with increasing pull rate; however, contrary to prior analyses, pull rate limits are identified as limit point bifurcations to quasi steady solutions. Multiple solution branches correspond to stable and unstable operating states, exhibiting dramatically different interfacial shapes that identify possible failure mechanisms.

1. Introduction

Ribbon growth processes have long been of interest for production of silicon for photovoltaic (PV) devices [1], primarily due to their promise of avoiding the wafering of ingots, which can result in up to a 64% kerf loss of material [2]. Since silicon contributes to 40 60% of the total fabrication cost of the PV cell [3], significant cost reductions should be possible with ribbon grown material. However, vertical ribbon growth processes, primarily the Edge defined Film fed Growth (EFG) process have been plagued by several limitations. For example, low growth rates of 1 3 cm/min [4,5] in the EFG system have resulted in material production rates an order of magnitude lower than ingot growth techniques. In addition, EFG material quality is adversely affected by high levels of carbon, dislocations, and twinning [6,7], thus yielding relatively low cell efficiencies [8].

The horizontal ribbon growth (HRG) technique, depicted schematically in Fig. 1, promises to overcome many of the limitations associated with vertical ribbon growth methods. First, the horizontal configuration extends the solid liquid interface and allows the latent heat of crystallization to be dissipated over a far greater area than in vertical growth methods, thus much higher growth rates can be realized [1]. In addition, the HRG method achieves growth without a carbon shaping die, such as employed by EFG, and under lower thermal gradients than vertical growth by the removal of heat roughly perpendicular to the growth direction. Both of which can lead to higher quality, even single crystalline, material.

In the late 1950s, Shockley first envisioned a process [9] that would grow thin silicon ribbons horizontally, supported by a molten material. The first practical implementation of an HRG process was achieved by Bleil in the late 1960s [10,11], who succeeded in growing thin ribbons of ice and germanium. His process involved pulling the ribbon horizontally over the melt surface, with submerged heaters at the bottom and heat sinks at the top, to form a wedge shaped growth interface extending over several centimeters. In the late 1970s and early 1980s, focus had shifted toward the production of silicon ribbons for photovoltaic substrates by this technique. Kudo [12] demonstrated growth rates of 41.5 cm/min for single crystal and 85 cm/min for multi crystalline silicon with several modifications in furnace design over Bleil's configuration, and Jewett et al. [13] demonstrated growth rates of up to 60 cm/min. In very recent work, Ydstie and co workers [14] inspired by the Pilkington float glass process, proposed a horizontal silicon growth process similar to that of Shockley and produced a prototype HRG system to grow ice.

In spite of these promises, however, the HRG process has yet to be applied successfully for the production of solar silicon due to a host of challenges that disrupt stable growth conditions. For example, the large rate of heat removal from the top surface of the melt needed to realize fast growth rates has led to reported supercooling followed by polycrystalline dendritic growth from

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enable fast growth while circumventing the many failure mechanisms inherent in this promising system.

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EXHIBIT M

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Steady-state and dynamic models for particle engulfment during solidification

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Moving boundary problem
Finite-element method
Arbitrary Lagrangian–Eulerian

ABSTRACT

Steady-state and dynamic models are developed to study the physical mechanisms that determine the pushing or engulfment of a solid particle at a moving solid–liquid interface. The mathematical model formulation rigorously accounts for energy and momentum conservation, while faithfully representing the interfacial phenomena affecting solidification phase change and particle motion. A numerical solution approach is developed using the Galerkin finite element method and elliptic mesh generation in an arbitrary Lagrangian–Eulerian implementation, thus allowing for a rigorous representation of forces and dynamics previously inaccessible by approaches using analytical approximations. We demonstrate that this model accurately computes the solidification interface shape while simultaneously resolving thin fluid layers around the particle that arise from premelting during particle engulfment. We reinterpret the significance of premelting via the definition an unambiguous critical velocity for engulfment from steady-state analysis and bifurcation theory. We also explore the complicated transient behaviors that underlie the steady states of this system and posit the significance of dynamical behavior on engulfment events for many systems. We critically examine the onset of engulfment by comparing our computational predictions to those obtained using the analytical model of Rempel and Worster [29]. We assert that, while the accurate calculation of van der Waals repulsive forces remains an open issue, the computational model developed here provides a clear benefit over prior models for computing particle drag forces and other phenomena needed for the faithful simulation of particle engulfment.

1. Introduction

The engulfment of foreign particles during solidification is important in a wide variety of physical processes, such as the fabrication of metal–matrix composites [1–3], separation processes [4], cryogenic preservation of biological materials [5,6], and frost heaving [7]. Extensive overviews of this topic have been presented by Shangguan et al. [8] and Asthana and Tewari [9,10].

Inclusions arising during the directional solidification of multi-crystalline silicon (mc-Si) have promoted a renewed interest in particle engulfment [11,12]. In particular, high concentrations of carbon in the impure molten silicon lead to the formation of silicon carbide (SiC) particles [13–15], which can be engulfed by the solidification front [16]. The presence of

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0021-9991/

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EXHIBIT N

Towards the Optimization of the Accelerated Crucible Rotation Technique Applied to the Gradient Freeze Growth of Cadmium Zinc Telluride via the Finite Element Method

A DISSERTATION
SUBMITTED TO THE FACULTY OF THE GRADUATE SCHOOL
OF THE UNIVERSITY OF MINNESOTA
BY

Mia Shakti Divecha

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

Jeffrey J. Derby

December, 2017

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EXHIBIT O

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Advances in Colloid and Interface Science 134–135 (2007) 346–359

ADVANCES IN COLLOID AND INTERFACE SCIENCE

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Numerical analysis of solutocapillary Marangoni-induced interfacial waves

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Available online 10 May 2007

Abstract

Spreading problems and solutocapillary waves are now routinely treated by semi-analytic lubrication theory leading to a 1D spatiotemporal system to be integrated numerically. In this review, such theories have been shown to be robust predictors of the pseudo-steady propagation at long times with only an initial transient period when the lubrication assumptions breakdown and the wave front is retarded due to bottom friction. Linear stability theory for bottom friction effects leads to 1D evolution equations that predict the scale of Marangoni stresses needed to excite waves and the solitary wave structure of their propagation. In general, applications which are sensitive to Marangoni effects naturally have high values of the Marangoni number (at least hundreds and potentially much higher in evaporation problems). Even when the Marangoni-induced effects are small amplitude, the gradients in stresses are such that numerical resolution requirements are steep. The idealization of interfacial dynamics to a domain with zero thickness (molecular effects) is computationally more demanding than the boundary layers induced in say high Reynolds number laminar flows. Therefore, specialized computational methods for treating open deformable interfaces with high transverse gradients are both required and are being successfully developed as reported here.

Keywords: Interfacial waves; Lubrication theory; Liquid substrate; Marangoni forces; Surfactant

Contents

1. Introduction

There are two classes of interfacial waves induced by solutal Marangoni effects: (1) wave fronts of spreading surfactants; (2)

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Nomenclature

Symbol	Description	Units
h, d	Film thickness (variable and equilibrium)	m
L	Longitudinal length scale	m
U, u	Horizontal velocity component	m/s
W, w	Vertical velocity component	m/s
p	Hydrostatic pressure	N/m^2
U_s	Reference velocity	m/s
t	Time	s
H	dimensionless film thickness	
t	Dimensionless time scale	
x	Horizontal coordinate	
z	Vertical coordinate	
k	Wavenumber	
$\mathbf{Z}$	Coefficient matrix	

Nondimensional groups

$Re=\rho U_s d/\mu$	Reynolds number
$St=\mu U_s/\rho g d^2$	Stokes number
$Pe=LU_s/D$	Peclet number
$G=gd^3/\nu\kappa$	Galileo number
$Ca=K=\mu U_s/\sigma$	Capillary number
$Sc=\nu/D=Pe/Re$	Schmidt number
$Fr_i=\frac{U_s^2}{\sqrt{gd}}$	Froude number
$Ma=M=h\sigma\Gamma\Delta\Gamma/L\mu U_s$	Marangoni number
M^c	Critical Marangoni number

Greek symbols

Γ	Surface concentrations	kg/m^2
μ	Dynamic viscosity	Pas
σ	Surface tension	N/m
σ_{ij}	Stress tensor	1/s
δ_{ij}	Kronecker delta	
$\varepsilon=d/L$	Smallness (long wave) parameter	
$\varepsilon_{est}=w/u$	Estimated smallness parameter	
ψ	Streamfunction	
ω	Frequency	
$\Theta(z)$	Normal mode wrt concentration	
ψ	Normal mode wrt streamfunction	
αj	Vector of eigenfunctions	
$\beta_j=q_2$	Dispersion coefficient	
λj	Characteristic exponents	
Δ	Determinant	
η	Surface disturbance length scale	

Acknowledgements

We are especially grateful to Victor Starov for introducing us to the fascinating physical chemistry of superspreaders, for which the tools underdevelopment here may eventually be applied. We thank G.M. Homsy, S. Kalliadasis, and M.G. Velarde for their helpful discussions. Support under the NATO CRG 940242 and the EPSRC Advanced Research Fellow programme (EPSRC GR/A01435) and grants (EPSRC GR/R72754, EPSRC GR/S83746) is acknowledged.

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r to Ba
My Confessions:A Lette
by Jayy Flar

Frederick L. (Rick) Allen, Nautilus Productions LLC (submitter)

Regan A. Smith
General Counsel and Associate Register of Copyrights,
U.S. Copyright Office
101 Independence Ave. S.E.
Washington, D.C. 20559-6000
[redacted]

Dear Ms. Smith,

I have been victimized twice by States infringing my copyrighted work. The first infringement in March of 2010 by the Alabama Department of Conservation and Natural Resources and the second time as the plaintiff in *Allen v. Cooper.*

In 2010 the Alabama Department of Conservation and Natural Resources (ADCNR) misappropriated an underwater image I created of a Sand Tiger shark and posted it to their website. The ADNCR grabbed the image from my website, with a prominent © embedded in it, photoshopped the © symbol out of the image and reposted my intellectual property on their website without permission or attribution.

Upon discovery of this violation I emailed the ADCNR a complaint letter and invoice requesting a minimal payment for use of my image on their website. The ADCNR refused payment, and removed my doctored image. Lacking any viable or affordable enforcement vehicle I was forced to let the matter drop. *(Documentation attached)*

My work as documentary producer, director and cinematographer pays my mortgage, my power bill, health insurance, grocery bill, etc. I pay income taxes and North Carolina sales tax and contribute to the $8B United States arts and cultural economy created by artists just like me. The misappropriation of images and video I created twice in a decade by States may be of little interest to others but that misappropriation directly affects my financial bottom line and my ability to care for my family.

All of my intellectual property taken by others represents a lost economic opportunity to license my work and contribute to our economy.

This is theft in its purest form. Period.

P.O. BOX 53269 • FAYETTEVILLE, NC 28305 • 910-826-9961

NAUTILUS
PRODUCTIONS

And, because of current law and Supreme Court precedent I am powerless to enforce my constitutionally granted intellectual property rights against infringement by States.

As you proceed I hope that you will consider the probability that I represent hundreds if not thousands of other creators who, just like me, have had their intellectual property misused by States and, like me, lack any effective remedy to that infringement.

Sincerely,

Frederick L. (Rick) Allen

[redacted]

P.O. BOX 53269 • FAYETTEVILLE, NC 28305 • 910-826-9961

Sand Tiger

Sand Tiger

Appearance: Large shark with a flattened-conical snout. Body is compressed-cylindrical and moderately stout. First and second dorsal fin are equal sized with a broad base. Origin of first dorsal fin well behind the free rear ends of the pectoral fins. Origin of second dorsal fin slightly ahead of anal fin's origin. **Anal fin is approximately the same size as the two dorsal fins.** Upper caudal pit is present. Teeth are very prominent, with large narrow cusps and lateral cusplets.

Coloration: Light brown upper body, white ventral. Often has darker reddish or somewhat brownish spots scattered over the body.

Distribution: Western Atlantic: Gulf of Maine to Florida, northern Gulf of Mexico, Bahamas, Bermuda, southern Brazil to Argentina.

Biology: A common species that lives in wide environmental conditions, from shallow bays to more than 600 ft. depths over the outer shelves. They often occur around coral and rocky reefs, and are found near the bottom but also in midwater or at the surface. This shark can live solitary as well as in small and large schools. This shark gulps air in order to be neutrally buoyant.

Feeding: Feeds on a large variety of bony fishes, as well as small sharks, squids and lobsters. These sharks have been observed to feed cooperatively, surrounding and bunching schooling prey and then feeding on them.

Size: Maximum size about 10.5 ft., average size around 8.5 ft. Reproduction: Aplacental viviparous species (ovoviviparous). This species possesses intra-uterine cannibalism where embryos feed on other embryos and egg capsules. This makes them much bigger at the time of birth (and already experienced in feeding). Therefore litter size is always 2 pups, one in each uterine compartment. Size at birth about 3.2 ft. Males and females reach sexual maturity with a minimum length of about 7 ft. Gestation period may be 8 to 9 months. Sandtiger sharks form mating aggregations.

[redacted]

Mr. [redacted],

The attached nvo ce for theft of my sand t ger mage s past due.

R ck A en

On 3/25/10 11:55 AM, [redacted] wrote:

> Dear Mr. A en,
> Th s acknow edges rece pt of your ema be ow. We take your a egat ons very ser ous y and I have begun an nvest gat on nto what occurred. P ease a ow me a coup e of weeks to fin sh the nvest gat on and I w be back n touch. Thank you very much.
>
> [redacted]
>
> P ease Note:
> Th s e-ma s confident a and may be protected by the attorney-c ent pr v ege. It s ntended for the so e use of the rec p ent(s) named above. If you have rece ved t n error, p ease not fy us mmed ate y by rep y e-ma and then de ete th s message from your system. P ease do not copy t or use t for any purposes, or d sc ose ts contents to any other person. To do so cou d v o ate state and federa pr vacy aws. Th s ema and any fi es transm tted w th t are confident a and ntended so e y for the use of the nd v dua or ent ty to whom they are addressed. If you have rece ved th s ema n error p ease not fy the system manager. P ease note that any v ews or op n ons presented n th s ema are so e y those of the author and do not necessar y represent those of the state. F na y, the rec p ent shou d check th s ema and any attachments for the presence of v ruses. The State of A abama accepts no ab ty for any damage caused by any v rus transm tted by th s ema . Thank you for your cooperat on.
>
> -----Or g na Message-----
> F[redacted]
>
> Mr. [redacted]
>
> On 3/24 I d scovered that DCNR (mage of webs te attached) s us ng an mage of a Sand T ger shark sto en from my webs te at; http://naut usproduct ons.com/sandt gersharks/amaze.htm . Not on y was the copyr ghted mage sto en from my s te w thout my know edge or perm ss on but the mage was man pu ated to remove the copyr ght over the p cture n c ear v o at on of your State po c es (tem 4.1 on your Standards 630-01S1 document - attached) and n v o at on of nte ectua property aws.
>
> I have attached a b for the ega use of the mage on the DCNR webs te. Fa ure to pay th s nvo ce may resu t n ega act on on my part.
>
> In the future f you wou d ke to use an mage from my brary or webs te p ease contact me. I m sure we can come to an am cab e agreement.
>
> R ck A en
>
> On 3/25/10 11:18 AM, [redacted] wrote:
>
> > I ask that you pursue th s through our Lega Sect on and am copy ng our attorney on th s ema .
> >
> > [redacted]

[redacted]

-----Or g na Message-----
[redacted]

[redacted]

I assume that I am to b you for the theft and remova of the copyr ght mark to h de the theft?
R ck

On 3/25/10 11:04 AM, [redacted] wrote:

> Mr. A en, I do not ma nta n th s page, but am request ng that the web s te adm n strator remove the mage.
>
> I w a so ook n to how th s happened as our agency does not approve of th s conduct.
>
> Thank you for po nt ng th s out to us.
>
> [redacted]com
>
> -----Or g na Message-----
> [redacted]
>
> Ms. [redacted]
>
> P ease send me your b ng address a ong w th the ength of t me you have been us ng the Sand T ger w th photographer mage at the top of th s page; http://www.dcnr.state.a .us/fish ng/sa twater/regu at ons/ m ts/Shark-ID/Sand-T ger.cfm.
> You are us ng a copyr ghted mage w thout perm ss on and are gu ty of theft. I have made a d g ta copy of your page and the copyr ght nfr ngement.
>
> Th s mage has been cropped, fl pped, the copyr ght s gn d g ta y removed and sto en from my webs te at;
> http://naut usproduct ons.com/sandt gersharks/amaze.htm (P ease note the copyr ght s gn on the mage and not ce on the eft s de of the page
> - scro down).
>
> Your mmed ate response s requ red or I may seek ega act on.
>
> R ck A en

--

R ck A en

[redacted]

--

[redacted]

[redacted]

Invoice

Date	Invoice No.
03/25/10	1809

Bill To:	Ship To
[redacted]	[redacted]

P.O. Number	Terms	Rep	Ship Date	Ship Via	FOB	Project
Sand Tiger	Due on receipt		03/25/10			

Item	Description	Quantity	Price Each	Amount
5006 SD	Theft of Sand Tiger image on DCNR website		800.00	800.00

Copyright to Nautilus Productions work product is not granted until payment is made in full.			Total	$800.00

Nautilus Productions LLC

[redacted]

Invoice

Date	Invoice No.
03/25/10	1809

Bill To:
[redacted]

Ship To
[redacted]

P.O. Number	Terms	Rep	Ship Date	Ship Via	FOB	Project
Sand Tiger	Due on receipt		03/25/10			

Item	Description	Quantity	Price Each	Amount
5006 SD	Theft of Sand Tiger image on DCNR website		800.00	800.00

Copyright to Nautilus Productions work product is not granted until payment is made in full.

Total $800.00

STATE OF ALABAMA

Information Technology Standard

Standard 630-01S1: Acceptable Use – Prohibited Activities

1. INTRODUCTION:

Inappropriate use of State information technology resources exposes the State and its data to risks including virus attacks, compromise of network systems and services, and legal issues. Effective security is a team effort involving the participation and support of every employee and affiliate who deals with information and/or information systems. It is the responsibility of every computer user to know these rules and to conduct their activities accordingly. These rules are in place to protect the employee, the State, and the data.

2. OBJECTIVE:

Define inappropriate and prohibited uses of State-owned information technology resources.

3. SCOPE:

These requirements apply to all users (State employees, contractors, vendors, and business partners) of any State of Alabama information system resources.

4. REQUIREMENTS:

4.1 PROHIBITED ACTIVITIES

- Any activity that is illegal under local, state, federal or international law
- Non-incidental personal use of State-managed computing resources
- Activities in support of personal or private business enterprises
- Unauthorized reproduction of copyrighted material
- Violating the rights of any person or company protected by copyright, trade secret, patent or other intellectual property, or similar laws or regulations, including, but not limited to, the installation or distribution of software products that are not appropriately licensed for use by the State
- Exporting software, technical information, encryption software, or technology, in violation of international or regional export control laws
- Introducing malicious software (malware) into the network or systems (e.g., viruses, worms, Trojan horses, logic bombs, etc.) within reason of user's control
- Making fraudulent offers of products or services
- Making statements of warranty, expressed or implied, unless part of normal duties
- Accessing, possessing, or transmitting material that is in violation of sexual harassment or hostile workplace laws in the user's local jurisdiction

- Accessing, possessing, or transmitting any sexually explicit, offensive, or inappropriate images and/or text
- Effecting security breaches or disruptions of network communication. Security breaches include, but are not limited to, accessing data of which the employee is not an intended recipient or logging into a server or account that the employee is not expressly authorized to access, unless within the scope of regular duties. Potential disruptions include, but are not limited to, ping sweeps, IP spoofing, and forging routing information for malicious purposes.
- Port scanning, packet sniffing, or other security scanning without prior IT Manager approval
- Executing any form of network monitoring which will intercept data not intended for the employee's host, unless this activity is a part of the employee's normal job/duty
- Circumventing user authentication or security of any host, network, or account
- Interfering with or denying service to any user except in the course of assigned duties
- Using any program/script/command, or sending messages of any kind, with the intent to interfere with, or disable, a user's terminal session, via any means, locally or via the network
- Accessing web sites offering online gambling, games, and related information such as cheats, codes, demos, online contests, role-playing games, traditional board games, game reviews, and sites that promote game manufacturers

4.2 EXCEPTIONS

Employees may be exempted from some of these restrictions in the course of their legitimate job responsibilities (e.g., Investigative personnel may require access to web sites that are otherwise restricted).

IT Managers or Agency Heads shall request exceptions from the appropriate authority (e.g., Network Support, State IT Security Council, or CIO).

5. ADDITIONAL INFORMATION:

5.1 POLICY

Information Technology Policy 630-01: Acceptable Use
http://isd.alabama.gov/policy/Policy_630-01_Acceptable_Use.pdf

5.2 RELATED DOCUMENTS

Information Technology Dictionary
http://isd.alabama.gov/policy/IT_Dictionary.pdf

Information Technology Standard 630-03S1: E-Mail Usage
http://isd.alabama.gov/policy/Standard_630-03S1_E-Mail_Usage.pdf

Signed by Art Bess, Assistant Director

6. DOCUMENT HISTORY:

Version	Release Date	Comments
Original	12/6/2006	Replaced Standard 630-01S


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If you have the #AlaskaBornAndRaised spirit, share your story at www.gci.com/shareyourstory.
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What does Santa want for Christmas? "Love and peace. The greatest gift you can give is love. If we want to live in a peaceful world, we have to instill love in the heart of every child first."
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