No. CR 17 00603 BLF NC

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

SAN JOSE DIVISION

THE UNITED STATES OF AMERICA

vs.

LIANG CHEN, DONALD OLGADO, WEI-YUNG HSU, and ROBERT EWALD

INDICTMENT

COUNT 1: (18 U.S.C. § 1832(a)(5) – Conspiracy to Commit Theft of Trade Secrets)

COUNTS 2 THROUGH 12: (18 U.S.C. § 1832(a)(3) & 2 – Possession of Stolen Trade Secrets; Aiding and Abetting)

A true bill.

Foreperson

Filed in open court this 30th *day of* Nov.

A.D. ~~2012~~ 2017

UNITED STATES MAGISTRATE JUDGE

Bail. $ Summons for all defendants

BRIAN J. STRETCH (CABN 163973)
United States Attorney

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

SAN JOSE DIVISION

CR 17 00603 BLF NC

UNITED STATES OF AMERICA, Plaintiff, v. LIANG CHEN, DONALD OLGADO, WEI-YUNG HSU, and ROBERT EWALD, Defendants.	Case No. VIOLATIONS: Title 18, United States Code, Section 1832(a)(5) – Conspiracy to Commit Theft of Trade Secrets; Title 18, United States Code, Section 1832(a)(3) – Possession of Stolen Trade Secrets; Title 18, United States Code, Section 2 – Aiding and Abetting; Title 18, United States Code, Sections 1834 and 2323 – Criminal Forfeiture SAN JOSE VENUE

INDICTMENT

The Grand Jury charges:

INTRODUCTORY ALLEGATIONS

1. Applied Materials, Inc. ("Applied") supplied equipment, services, and software to enable the manufacturing of semiconductor chips for electronics, flat panel displays for computers, smartphones and televisions, and solar products. Applied was headquartered in Santa Clara, California.

2. Liang CHEN ("CHEN") was employed at Applied as the Corporate Vice President and General Manager of the Alternative Energy Products ("AEP") division. He was hired by Applied on May 30, 1995, and resigned from the company on October 31, 2012.

3. Donald OLGADO ("OLGADO") was employed at Applied as the Managing Director of

Engineering within the Product Business Group. He was hired by Applied on November 30, 1992, and was involuntarily terminated from the company on January 25, 2013.

4. Wei-Yung HSU ("HSU") was employed at Applied as the Vice President and General Manager within the Semiconductor LED division. He was hired by Applied on July 10, 2000, and resigned from the company on December 4, 2012.

5. Robert EWALD ("EWALD") was employed at Applied as a Director of the Energy and Environmental Systems within the Alternative Energy Products division. He was hired by Applied on January 10, 2000, and resigned from the company on November 4, 2012.

The Technology

6. The technology at issue supported the high-volume manufacturing of semiconductor wafers to be used in lighting and electronic devices, such as flat screen televisions and smart phones. Gallium nitride (GaN) was a type of semiconductor material used to manufacture light emitting diodes ("LEDs") among other items.

7. Metal Organic Chemical Vapor Deposition ("MOCVD") was a highly complex process for growing crystalline layers by spraying different chemicals on wafers. Applied, through years of research and testing, and millions of dollars in investment, had developed an advanced multichamber MOCVD system with high yield wafer capacity. Applied's work in this area was called "Project Neon" (and later project "Paragon") and produced a tool for customer use called "NLighten."

8. The wafers for LEDs were grown by the deposition of certain chemical vapors onto wafers in a MOCVD reactor containing multiple chambers. The growth of crystals (layers) on the wafer was achieved through a series of chemical reactions. Ultrapure gases were injected into a chamber and finely dosed to deposit a very thin layer of atoms onto the wafer.

9. These reactions were performed in a series of multiple MOCVD chambers with wafers placed in the system by a multi-wafer autoloader. Specifically, the mainframe robot transferred wafer "carriers" in a vacuum environment to and between the various chambers. In the chambers, the gas mixture was heated at various temperatures. The entire process, performed under "clean room" conditions, was fully automated and controlled by computers.

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Applied's Trade Secrets

10. Applied's MOCVD LED technology contained trade secrets, as defined in Title 18, United States Code, Section 1839(3), including the following:

a. The MOCVD LED Customer Tool: Applied's MOCVD LED technology was developed for use in a customer tool designed and created by Applied's MOCVD LED team. The customer tool and MOCVD processes were designed under project names "Neon" and "Paragon" and resulted in products being sold on a Beta basis to customers both domestically and internationally (the products were referred to as "NLighten"). Applied used CAD software platform for engineers to design the customer tool under the Neon and Paragon project names, and those CAD drawings were housed in a confidential database called Teamcenter. Only authorized MOCVD LED team members had access to the drawings, and limitations were placed on the use and copying of those drawings. The MOCVD LED customer tool included, but was not limited to, the following:

i. Multi-chamber capacity: This allowed the vapor treatment of multiple wafers simultaneously and was critical to increasing throughput results and flexibility in the manufacturing of MOCVD-treated wafers.

ii. Autoloader Design: This permitted automated loading of multiple wafers for MOCVD treatments and was critical to increased throughput.

iii. Showerhead: This was specifically designed for the MOCVD treatments, and included, without limitation, the number, diameter and direction of holes in the showerhead and the ability to be automatically cleaned between MOCVD treatments.

iv. Lamp Array Design: This ensured that the correct temperature and duration of temperature was used by the tool during the application of the MOCVD treatment.

b. BOMs: Applied's Bills of Material ("BOMs") contained the exact materials used to create the MOCVD tool and included the materials used, the source of the materials, and how the materials identified were related to one another in relation to the design, operations, and throughput results of the MOCVD LED customer tool.

c. Recipes: Applied designed, developed and implemented "recipes" of chemicals to be used to create the most effective MOCVD treatment of the wafers as they processed through the

customer tool and to clean the chambers without stopping production. These recipes identified the type and quantity of chemicals to be used in the process, and included the order of use, the amount used, the manner of application and the temperature to be used with the application. One of the recipes was for the automated cleaning of the tool, which resulted in fewer interruptions of wafer runs, higher throughput, and higher quality of treated wafers.

d. Prototypes: Prototypes of individual elements of the MOCVD tool that Applied maintained to advance the innovations designed by engineers to improve the MOCVD LED customer tool.

e. Client Data: As part of its research and development of the MOCVD LED tool, Applied installed the tool at customer locations (under strict confidentiality limitations) and received customer data regarding the performance of the MOCVD LED tool. Such data was then analyzed and relied upon to create additional innovations of the MOCVD LED customer tool.

f. Marketing Materials and Plans: Applied designed and developed a marketing plan to promote its MOCVD LED tool including PowerPoint presentations, data analysis, and market analysis and projections all of which were confidential and were critical to the development of the MOCVD LED customer tool and the related market for that tool.

COUNT ONE: (18 U.S.C. § 1832(a)(5) – Conspiracy to Commit Theft of Trade Secrets)

11. The factual allegations contained in Paragraphs 1 through 10 are realleged and incorporated as if fully set forth here.

12. Beginning in approximately September 2012 and continuing to approximately December 2012, in the Northern District of California and elsewhere, the defendants:

LIANG CHEN,
DONALD OLGADO,
WEI-YUNG HSU, and
ROBERT EWALD,

together with others known and unknown to the Grand Jury, knowingly combined, conspired, and agreed to:

a. Knowingly and without authorization steal, appropriate, take, and by fraud, artifice, and deception obtain trade secrets belonging to Applied that were related to a product or

service used in and intended to be used in interstate and foreign commerce;

b. Knowingly and without authorization copy, duplicate, alter, replicate, transmit, deliver, send, communicate, and convey trade secrets belonging to Applied that were related to a product or service used in and intended to be used in interstate and foreign commerce; and

c. Knowingly receive, buy, and possess trade secrets belonging to Applied that were related to a product or service used in and intended to be used in interstate and foreign commerce, knowing the same to have been stolen, appropriated, obtained, and converted without authorization;

intending to convert those trade secrets to the economic benefit of someone other than Applied, and intending and knowing that the offense would injure Applied, in violation of Title 18, United States Code, Section 1832(a)(1), (2), and (3).

Manner and Means

13. Defendants CHEN, OLGADO, HSU, and EWALD, while still employed at Applied, conspired to steal Applied's MOCVD technology and use it in a competing company, called "Envision," to be based in the United States and China. They used their personal emails to communicate about their plans, tasked lower-level employees to assist them with the downloading of confidential materials and uploading the materials to a Google drive account, and removed hardware related to the MOCVD technology from Applied.

14. Beginning in September 2012, CHEN, OLGADO, HSU, and EWALD planned the formation of Envision, which was to be registered on November 1, 2012.

15. From an unknown date to approximately December 7, 2012, OLGADO, while still employed by Applied, downloaded over 16,000 CAD drawings containing Applied's MOCVD technology from Applied's confidential internal engineering database known as Teamcenter. OLGADO also enlisted other Applied employees to assist him with the downloading. OLGADO, with the assistance of other Applied employees, took 100 percent of the CAD drawings for the autoloader assembly, and 97 percent of the CAD drawings for the Chamber Module, including CAD drawings for the showerhead and lamp modules. Furthermore, the BOMs for the autoloader assembly and Chamber

Module were stolen.

16. CHEN, OLGADO, HSU, and EWALD communicated using their Google, Yahoo, and SBC Global email accounts to discuss, among other things, business plans, technological issues, the progress of downloading and sharing Applied's confidential materials from Applied's computer network, and securing funding from venture capitalists.

17. From approximately October 1, 2012 through November 2012, CHEN attempted to recruit investors in order to fund Envision in the United States and the People's Republic of China.

Overt Acts

18. In furtherance of the conspiracy and to effect its objects, CHEN, OLGADO, HSU, and EWALD committed the following acts:

a. On September 20, 2012, CHEN, using his personal account, emailed OLGADO stating:

> I have confirmed my trip to Shanghai next week. Most likely departing on Monday morning, just waiting for four more investors confirmation, already confirmed 2 investors.

b. On September 22, 2012, OLGADO, using his personal account, emailed HSU, CHEN, and EWALD to discuss Envision-related expenses and tax issues, and stated that he needed "to step up efforts to get this work done off the office system."

c. On September 24, 2012, HSU, using his personal email account, emailed OLGADO, CHEN, and EWALD, stating "all; I have update[d] the competitive info, hoping this can help to narrow down the design." HSU attached "WY- Competitive Analysis 092412.ppt," which was a PowerPoint presentation bearing Applied' trademarked name and logo, entitled "MOCVD High Value Problem And Competitive Assessment," dated July 2012. Pages 7 and 16 of the presentation were marked "Applied Confidential."

d. On a date prior to September 26, 2012, CHEN authored a PowerPoint presentation entitled "Envision – Enabling high growth solid state lighting LED & power electronics industries." The presentations contained Applied's confidential information, including using several slides that were identical to Applied's presentation for NLighten.

e. On September 27, 2012, OLGADO, using his personal account, emailed CHEN, HSU,

and EWALD stating:

> Just to highlight the exposure risk. I've been working through demo licenses and getting this set up and getting quotes. Most of the computer guys, software guys came back and ask me if its related to AMAT - even though I never used AMAT email or· reference anywhere. After asking - they all have databases. So I have to ask then to keep it under wraps. So we need package . . . . tick tick tick.

f. On October 4, 2012, CHEN, using his personal account, emailed EWALD a PowerPoint Presentation entitled ""Envision – Enabling high growth solid state lighting LED & power electronics industries." CHEN informed EWALD that he should accompany him on future meetings with venture capitalists and instructed him to update the 5-year development plan in the presentation.

g. On October 9, 2012, OLGADO, using his personal account, emailed CHEN to discuss downloading the technology onto a USB drive, and specifically that Applied software would not allow him to do so. OLGADO wrote,

> Tough last few days.
> AMAT push software that stops you from using and usb storage. My USB drive also crashed, might not be a coincidence. I have to recover these files of [sic] I'm hosed. I will look for a recover company tomorrow. If I get it back I need RAID for protection.
> I now have a problem with the rest. I will have to figure out how to get around it. Maybe setup a FTP site. It will be very slow. I need to get some hackers.
> The CAD package is also having a lot of problems importing stuff. I need to talk to them tomorrow. This is a big problem, I really don't want to go to the 12K software.

h. On October 9, 2012, CHEN, using his personal account, replied to OLGADO's email above, stating:

> Sure. I checked my email tonight, but did not see any requests yet. Will check again tomorrow morning before I go to Palo Alto.

i. On October 11, 2012, EWALD, using his personal account, sent an email to CHEN, HSU, and OLGADO entitled "Agenda for today's meeting." The email contained six topics, including timeline review, scale-up decision, and carrier vs. shuttles decision.

j. On October 22, 2012, EWALD, using his personal account, emailed OLGADO regarding office space for Envision and the execution of Envision's plan. EWALD wrote, "I have a couple questions for you: 1. When do you think you will need office space, Nov or Dec? 2. Have you had a chance to review the execution plan?" OLGADO replied:

> As far as office space, I personally don't need it and depending on number of people don't see it coming it to play for a while. Also, prefer to work at home until AMAT is resolved. What I really need and am working on is getting IT infrastructure which means hosting, workstations, CAD licenses, part numbering and data management. I'm talking to several friends who are experts here. As far as the plan, I glanced at it but haven't gone into specifics. . . .

k. On or about October 26, 2012, OLGADO purchased Solid Edge software licenses from Saratech, Inc. for $29,475.

l. On November 9, 2012, OLGADO, using his personal account, emailed CHEN and HSU to update them on his export and design progress. OLGADO wrote:

> Let me try to summarize what is going on to maybe put you guys at ease (or panic) . . . .
>
> Export
> I have all the Nlighten and paragon. Exported the top level assembly and I'm finding that the assemblies are either too big and there is one or 2 bad parts or phantom parts that is killing the process . . . . The problem with this is I need a BOM to use as a map so that I can navigate the sea of random part numbers in the directory. Most of this week is figuring out how to export that BOM . . . .
>
> Design
> Baring [sic] any surprises, I expect the BOM export to take about 1-2 weeks, but after the 1st week, translation and assembly can start moving. I would then estimate that I need between 2-3 weeks before we have a stable base to start designing from, although translation will still continue on the peripheral stuff (CDS, Showerhead, etc.) . . . .

m. On November 19, 2012, OLGADO, using his personal account, emailed Applied employees identified by the initials "E.K.," "R.T.," and "S.L." He asked to set up a meeting with the three of them, and added:

> You should have seen an email for sharing google drive folder. I've set up a structure that mimics the NEON master layout and want to put the BOMS in the same order. . . .
> So I'v [sic] been working on the fatboy layout and have figured out that the test stand subassembly is what is making it crash. So having the BOM is important for us to piece this thing together and if you guys are setup with SE, we can try to divvy that part up too. . . . My mid term plan is open up my NAS to the internet and we can have a home made working cloud . . . . A bit of a rush since we only have 2 weeks and counting of access.

n. On November 20, 2012, CHEN met with a venture capitalist identified by the initials "A.H." at Il Fornaio restaurant in Palo Alto, California. CHEN discussed his plans for a start-up, (Envision), and told A.H. that he was looking for funding to capitalize a particular type of MOCVD

Technology for LED and Power Electronics. CHEN gave A.H. a PowerPoint Presentation entitled "Envision – Enabling high growth solid state lighting LED & power electronics industries."

o. On November 26, 2012, OLGADO, using his personal account, emailed Applied employees identified by the initials "E.K.," "R.T.," "S.L.," and "M.K." OLGADO stated:

> I realize now why some of the assemblies did not import into SE. The problem is not on the SE side but on the TCe side. I was working on the chamber and I realized some parts were down rev'd. After opening both on my computer and the original, I realized some files did not translate over.

p. On December 9, 2012, OLGADO gave a former Applied employee identified by the initials "M.K." the showerhead for the MOCVD tool and asked him to return it to Applied. M.K. took the showerhead, contacted another Applied employee in order to access an Applied facility, and left the showerhead on an engineer's office. M.K. had previously retrieved the showerhead at OLGADO's direction and brought it, along with other Applied property, to OLGADO's storage locker in Santa Clara, California.

All in violation of Title 18, United States Code, Section 1832(a)(5).

COUNTS TWO THROUGH TWELVE: (18 U.S.C. § 1832(a)(3) & 2 – Possession of Stolen Trade Secrets; Aiding and Abetting)

19. The factual allegations contained in Paragraphs 1 through 10 and Count One are realleged and incorporated as if fully set forth here.

20. On a date unknown and continuing to approximately December 2012, in the Northern District of California and elsewhere, the defendants,

LIANG CHEN,
DONALD OLGADO,
WEI-YUNG HSU, and
ROBERT EWALD,

knowingly received and possessed the Applied trade secrets identified below, knowing them to have been stolen and appropriated, obtained, and converted without authorization, with the intent to convert the trade secrets, which were related to and included in products to be produced for and placed in interstate and foreign commerce, to the economic benefit of someone other than Applied, and intending and knowing that the offense would injure Applied.

Count	Teamcenter Item ID	Applied Part No.	Description
Two	TC2-0875534	0041-29695	Weldment Outrigger Autoloader Base
Three	TC2-0882262	0021-60931	Window Robot Display Autoloader RFP
Four	TC1-0488531	0041-13266	Gas Distribution Assy Neon Showerhead
Five	TC1-0546328	0041-25899	Mo Gas Deflector III-60 Assy
Six	TC1-0429737	0021-41978	Bearing, Rotating Reflector, Bottom, Version 2B (032 THK)
Seven	TC2-0754970	0041-13601	Bracket, Bearing Support, Lower Lamp Module, MOCVD, Neon
Eight	TC3-0402521	0195-07483	Assy, Carrier Pallet, NLighten CDS
Nine	TC3-0256429	0050-98820	Inter Connect, Weldment 2, Hydride Pallet, Phase I
Ten	TC3-0402584	0195-07485	Assembly, Hydride Pallet, NLighten CDS
Eleven	TC1-0248933	0040-39010	Manifold CFW Mainframe Block 2
Twelve	TC2-0130472	0040-03883	Blank Off, Top Mount, Robot/Adapter 300MM

All in violation of Title 18, United States Code, Sections 1832(a)(3) and 2.

FORFEITURE ALLEGATION: (18 U.S.C. §§ 1834 and 2323 – Proceeds and Property Involved in Theft of Trade Secrets)

21. The allegations contained in Counts 1 through 12 of this Indictment are hereby realleged and incorporated as if fully set forth here. Upon conviction of any of those offenses, the defendants,

LIANG CHEN,
DONALD OLGADO,
WEI-YUNG HSU, and
ROBERT EWALD,

shall forfeit to the United States of America, pursuant to Title 18, United States Code, Sections 1834 and 2323, any property used, or intended to be used, in any manner or part to commit or facilitate the commission of the offenses, and any property constituting or derived from any proceeds obtained directly or indirectly as a result of the commission of the offenses.

22. If any of the property described above, as a result of any act or omission of the defendants:

a. cannot be located upon the exercise of due diligence;

b. has been transferred or sold to, or deposited with, a third party;

c. has been placed beyond the jurisdiction of the court;

d. has been substantially diminished in value; or

e. has been commingled with other property which cannot be divided without difficulty,

the United States of America shall be entitled to forfeiture of substitute property pursuant to Title 21, United States Code, Section 853(p), as incorporated by Title 18, United States Code, Section 2323(b).

All pursuant to Title 18, United States Code, Sections 1834 and 2323.

DATED: November 30, 2017

A TRUE BILL.

FOREPERSON

BRIAN J. STRETCH
United States Attorney

for JOHN H. HEMANN
Deputy Chief, Criminal Division

(Approved as to form: _____)
AUSA SUSAN KNIGHT