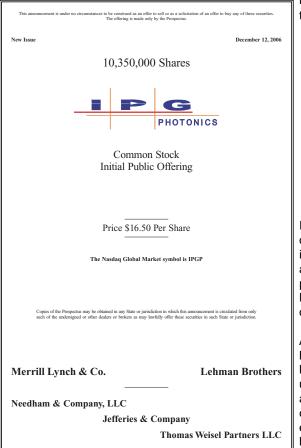
# THE ACTIVE FIBER

#### To our Valued Customers

I am pleased to announce that IPG Photonics has completed a successful initial public offering. Our company's stock is now listed for trading on the NASDAQ Global Market under the ticker symbol "IPGP." Our initial public offering is a tremendous accomplishment for IPG and very positive news for our customers. We are now a stronger company with significantly greater resources to enhance our superior product offerings. We also now have an even better ability to service our customers. In addition, as a public company we are committed to being transparent to our investors, customers and other stakeholders.

## THE WALL STREET JOURNAL.

WEDNESDAY, DECEMBER 20, 2006



IPG's success and our ability to complete our initial public offering is due to the loyalty of our

customers. We thank you for your support of our novel technology and products. We plan to continue to provide you with the highest-quality products and top-notch customer service that you expect from us. Please note that going forward your service and sales contacts will not change.



Sincerely,

IPGP NASDAQ

Valentin P. Gapontsev, Ph.D. Chairman and Cheif Executive Officer

## IPG PHOTONICS CONTINUES WITH EXPANSION

In recent months, IPG has expanded by way of company size. A new sales and service office operating out of the Detroit, MI area opened last July to strengthen support for existing and potential customers in the Midwest and in the Canadian market areas. Fast acceptance of fiber lasers in the automotive industry and in heavy manufacturing has proven the need for expansion in the area. Along with the opening of the new facility, Michael Klos, an experienced industry veteran, was appointed the position of Midwest operations manager.

A four story, 47,000 sq ft manufacturing building was completed in 2006 at the worldwide headquarters in Oxford, MA. Being vertically integrated, the new facility was necessary to keep up with the continuous influx of new customer orders and the rapidly increasing product line. The structure was built to expand upon the manufacturing space for high power and mid power fiber lasers, the diode test and diode packaging areas. A new 1,600 sq ft cafeteria was added as well. Currently, construction is almost complete for an even greater expansion of the diode manufacturing sector; a brand new building that increases the plant by 30,000 sq ft. In addition, another building greatly expanding the applications and production capability is currently in development.

At IPG Germany, 47,000 sq ft is being added to the site. The new building is required for expansion of the applications laboratories, fiber fabrication and assembly operations. This expansion will bring IPG's worldwide manufacturing space in total to greater than 400,000 sq feet. These additions will allow IPG to keep up with the rapid growth at the company.

IPG announced the opening of a new Beijing office with plans to move into a new 34,000 sq ft facility this coming summer. The new office is to open in China to provide local support and service for the Company's fiber lasers and fiber amplifiers in that region.

## COMPANY EXPANSION, A FURTHER LOOK

In terms of establishing ground in the Midwest, the area is known as the central location for high power laser activity in North America. IPG has already established its credibility and durability in these demanding industrial manufacturing environments and is continually increasing its market share. General Manager of the Midwest division, Mike Klos, stated that "the timing of introducing the IPG high power fiber laser was perfect for the automotive industry in the United States. With the focus on increasing margins and productivity, the IPG fiber technology allows not only for the lowest operating costs, it actually increases throughput with lower overhead. The introduction of new high strength steels for increased crash and rollover protection cannot be processed effectively with conventional tools. The superior beam quality of the fiber laser is the only practical way to cut some of these exotic steels.

"We are also seeing the robot companies refine motion accuracies and increase speeds due to the faster cutting speeds of the IPG fiber laser. Because of the demand for faster speeds, the companies that make the optical heads are introducing a wide array of new precision cutting heads and remote welding heads. The bottom line is that there is a race to harness our new technology to bring the US auto industry back to the forefront of manufacturing." Klos adds, "I see a time in the near future where the IPG laser dominates in all areas of automobile laser applications."

In the new Beijing office, staff will include approximately 30 trained sales, support, applications, technical and administrative personnel from HM Laser with Jun Shao as General Manager. IPG is opening the new office in conjunction with the acquisition of its Chinese distributor, HM Laser. "Opening an office in Beijing demonstrates IPG's commitment to the China region and will enable the Company to provide prompt and direct technical support," said Dr. Valentin Gapontsev, IPG Photonics' Chief Executive Officer. "We are seeing increased business activity in the evolving Chinese market, and our continued success demands that we have a local team. IPG China will address local market needs and support future regional growth. With our three existing offices in Asia, we now have a solid foothold in the region." IPG (Beijing) Fiber Laser Technology Co., Ltd., the official name of the China office, is registered in the Beijing Economic and Technology Trade Zone. It is authorized to conduct domestic business.

#### IPG (Beijing) Fiber Laser Technology Co., Ltd.

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#### IPG Photonics Reports Record Fourth Quarter and Full Year 2006 Sales

#### Company Grows Revenue by 49% in 2006

"Our sales growth was driven by sales of fiber lasers for materials processing applications, including low- and mid-power OEM sales and high-power laser sales," stated Dr. Valentin Gapontsev, IPG Photonics' Chief Executive Officer. "IPG Photonics' lasers are used by materials processing customers primarily for marking, cutting and welding a wide variety of materials. This is currently our largest market and the one where we are experiencing the greatest growth."

"In addition to our strong financial performance, we also achieved several significant milestones during the quarter, including completing a successful IPO in December," added Dr. Gapontsev. "We won several new OEM orders as well as end-user orders that demonstrated the continuing momentum of our products in the market. We also made progress in optimizing our manufacturing and selling capabilities by bringing online a new application center in Germany, and we received Chinese approvals to open an office there. As we begin our first full year as a public company, we have several key goals that support our growth strategy," said Dr. Gapontsev. "First, we plan to target new applications for



Valentin Gapontsev, Ph.D. Chairman and CEO

fiber lasers and to displace existing laser technologies. We also plan to support our growing customer base with expanded worldwide service capabilities and applications labs. In addition, we plan to continue to optimize our manufacturing through new facilities and improved techniques."

# PRODUCT NEWS AND INFORMATION

## CUTTING HIGH STRENGTH AUTOMOTIVE STEELS

Vijay Kancharla

High strength automotive steels are replacing low carbon steels that are currently being used in many automotive structural components. These steels offer a much higher strength-to-weight ratio than conventional cold rolled steels and have better structural function with less metal. The high strength-to-weight ratio opens up many attractive weight reduction opportunities that directly relate to improving the strength while simultaneously reducing the vehicle weight and ultimately making more fuel efficient vehicles.

High strength steels (HSS) come in a spectrum of strength levels from medium strength low alloy (MSLA) to ultra High strength steels (UHSS). Hot formed boron steels are of particular interest because its suitability to form structural components such as A and B pillars, bumper reinforcement beams, door intrusion beams, rocker panel inners and reinforcements, side sill reinforcements, roof rails, etc. Hot stamping these boron steels offers the advantages of advanced-high-strength material's properties without the manufacturing limitations of spring back in very high strength steels.

The downstream process after stamping the hot formed parts involve trimming, cut outs and other steps that are usually performed with mechanical dies and shears. The disadvantages of such mechanical processes are high tool/die wear due to the high tensile strength of the HSS. The design of such mechanical tools is rigid and is not flexible when incorporating new designs and the cost and time frame to design and manufacture new tools/dies is also a limiting factor. Lasers offer a non-contact solution and eliminate the drawbacks associated with such a process. To date, CO<sup>2</sup> and YAG lasers are employed to overcome such limitations.

Fiber lasers have been recently evaluated as an alternate solution for performing such downstream operations. The advantages of fiber lasers over the conventional lasers are making them the preferred laser choice of manufacturing engineers for such cutting applications. Advantages such as multi-kilowatt power, the highest beam quality, power stability, small spot size and long depth of field are some of the qualities the fiber lasers offer for this application. The other advantages are the compact size, fiber delivery, high efficiency and flexibility to integrate with multi axis machining centers or with a robot arm for performing trimming and cutting operations.

The maximum material thickness that is currently hot formed is

under 2mm. The other advantages of using UHSS is the thinner gauge: the thinner the gauge, the faster the cutting process with less power. A 1kW was evaluated to cut 1mm and 2mm thick hot formed coated born steels for trimming and cutouts. The 1mm sheets were processed



with 500W CW at 13m/min and 2mm sheets were cut with a 1kW at 8m/min. High processing speeds above 20m/min can be achieved using a higher power fiber laser. Fig 1 shows cut outs made in 2mm hot-formed martensitic steel.

As the regulations to improve the fuel efficiency gets stricter, shifting to UHSS is one of the many options to manufacture fuel-efficient cars. It is anticipated that the usage of UHSS will expand and be implemented on a variety of parts in the coming years. High power CW fiber lasers offer a reliable solution for processing a variety of high strength steels.

#### IPG Photonics & Reliant Technologies Introduce New Integrated Industrial Scanning System

Combining Patented Scanner Technology with a Fiber Laser for High Speed Spot Welding, High Speed Percussion Drilling and Other Material Processing Applications

IPG Photonics Corporation and Reliant Technologies, Inc. announced the introduction of a revolutionary new industrial scanning system for high speed spot welding and drilling that can increase manufacturing throughput and end product performance. This new scanning system combines proprietary technology developed by Reliant for original use within their medical device products with IPG's proven industrial fiber lasers.

This industrial scanner provides the ability to rapidly dwell at a particular location for a programmed period of time with frequencies of up to 5,000 times per second. More importantly, the locations can be non-sequential to ensure thermal management on the material to be processed.

These features enable the scanner to bring the precision of thermal heat management from medical device technology to industrial markets such as computers, consumer electronics and aerospace.

The scanner is well suited for high speed spot welding, high speed percussion drilling and material processing applications where thermal management and speed are important. It has only one moving part making it very adaptable to manufacturing environments. Additionally, the scanner can be utilized with any high brightness fiber laser from IPG and eliminates the inaccuracies and mechanical problems associated with standard scanner technology.

# PRODUCT NEWS AND NEORMATION POLYMER WELDING BY FIBER LASER

#### Christian F. Greig

Transmission welding of polymers by laser, although not a new application, has benefited greatly from the advent of fiber laser technology. Traditional techniques utilized beam delivery system and focusing optic that created a suitable energy density at a limited focus plane. In order to accommodate a large processing workspace, either an X-Y motion platform with fixed beam delivery or a three-axis galvo based delivery is employed.

Recently, IPG has paired a collimator and fiber to generate a long working distance arrangement which has allowed our customer to have a large working area with a two-axis galvo arrangement and



window, thus simplifying the design of the system as well as lowering cost.

The design has been deployed for transmission welding of polymer housings in the automotive sensor market which requires precise, strong, hermetic sealing such as those for RF air pressure sending units found in today's sophisticat-

ed vehicle systems. Using a galvo-based system is one method which uses contour welding to provide rapid set-up and changeover for the large compliment of sensors which have unique geometries.

Laser welding reduces vibration and thermal stresses in the bonding process over other joining methods such as ultrasonic, vibration and hot-plate welding. This reduces the stresses on internal components, improving overall yield in the manufacturing process.

Once a hermetic seal is produced, these stresses on internal circuits are no longer visible by optical means and must be tested using more expensive and labor intensive methods such as X-Ray inspection.

Additionally, new materials have entered the marketplace which are more conducive to laser welding in the 1-micron arena, which is the wavelength of IPG's Ytterbium fiber laser. The most common in near-IR transmitting polycarbonate to 30% glass-fiber reinforced Polybutylene-terephthalate, or PBT.

Other materials on the market also exhibit excellent welding characteristics along with the chemical and mechanical attributes required in the harsh environments of the automotive and aerospace sectors. Companies such as DuPont have released products which have suitable NIR-transmitting properties with t-numbers above 30-50%. These include PVC (polyvinyl chloride), PS (polystyrene), HIPS (High impact polystyrene) and in some cases PP (Polypropylene), although PP will typically require a longer weld cycle time.

Many materials are still unsuitable to laser welding at 1micron and need to be evaluated on a case by case basis. Here at IPG Photonics, we have a full compliment of laser products which include fiber delivered direct diode, Ytterbium, Erbium, Thulium as well as Raman shifted wavelengths. Our Applications Laboratory located in Oxford, MA provides feasibility testing free of charge across this large wavelength spectrum, helping out customers develop their processes quickly and efficiently.

#### IPG Fiber Lasers:

#### The main component for Advanced Aircraft Manufacturing **Processes**

The Connecticut Center for Advanced Technology, Inc. (CCAT) and Coast Composites of Irvine, CA are currently in the process of relocating a 10kW Ytterbium fiber laser from its East Hartford, CT location to California to accomplish the final assembly of molds. These molds are targeted for the fabrication of very large composite structures that will be used on the Boeing 787 "Dreamliner." This fiber laser was produced by IPG Photonics. The laser provides the current technology which makes this effort possible.

The fiber laser has a high wall plug efficiency (>25%) and significantly higher beam quality that conventional carbon dioxide (CO<sup>2</sup>) or solid state ND:YAG lasers, which results in less power required to produce comparable joint configurations and less cooling needed by the unit itself. The portability of the system makes transporting and set up of the laser easier and quicker. In addition to its use under this agreement, CCAT is investigating the use of the fiber laser for many other aerospace applications.

#### Fiber Laser to Replace Crystal Lasers in **Hydroform Cutting**

#### IPG Photonics Wins Multiple Unit Order for KiloWatt Fiber Lasers from Tier One Automotive Supplier

In the first guarter of 2007, a Tier One automotive supplier placed an order with IPG Photonics for ten 1,000-watt fiber lasers used to cut hydroform parts. After undergoing more than a year of extensive head-to-head production testing, the parts supplier selected IPG's all solid-state fiber lasers to replace diode-pumped crystal rod lasers previously used by the customer. The units were expected to be delivered in the first guarter of 2007.

"Our Tier One customer decided to retrofit its robotic cutting cells because of the lower labor, parts, electrical and maintenance expenses associated with IPG's advanced kilowatt fiber lasers, along with their high reliability, as proven through a long field trial," said Bill Shiner, Vice President of Industrial Sales at IPG. He added "this order is further evidence how customers can reduce production costs by replacing conventional lasers with IPG's proven fiber laser technology."

Hydroform parts, shaped by ultra-high pressure water, are widely used as structural components in trucks and SUVs and provide many advantages over parts alternatives, such as stamping and welding.

# COMPANY NEW

#### **Christian Greig named Market Development Manager** for Microelectronic and Medical Devices



Christian joins IPG Photonics with a strong background in laser technology and over 14 years of experience in laser microprocessing applications. He has previously held positions at companies specializing in application development with a variety of laser technologies. These technologies include Nd:YAG, excimer, CO<sup>2</sup>, direct diode and ultra-fast

lasers. In his new position, Christian will be based at the Oxford headquarters, and is responsible for developing new markets, applications and customers for IPG's low-medium power single mode and low order mode pulsed fiber lasers.

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#### **Dan Eigner named Atlantic Coast Sales Manager**

Dan Eigner has extensive experience in all types of material processing lasers along with applications experience from both Hobart and United Technologies. Dan brings with him a breadth of knowledge gained from his years of experience in the laser industry, his latest position was Northeast Sales Manager for Rofin.

> Direct Line: 508-373-1205 Mobile: 774-272-1871 deigner@ipgphotonics.com

#### Mary Jo Gryncewicz and Chris Haskell added to IPG **Customer Service Team**

Mary Jo brings almost 20 years of experience as an Office Manager and Administrative Assistant to the team. Utilizing her excellent interpersonal and organizational skills, she will focus on facilitating timly responses to customer inquiries and coordination of inhouse service activities. Mary Jo will do her best to make sure every incoming call is answered promptly and will redirect to the appropriate IPG resource.

Chris brings over 10 years of experience in the manufacturing and research of lasers and laser products, along with 4 years of schooling in electronics. Since joining IPG, he has worked as a test technician with exposure to all of IPG's main product lines, most recently focused on the testing of high power laser systems. In his new role, Chris will be responsible for technical phone support, improving product manuals, creation of customer training materials, and conducting training.

#### **Charlie Bridge named High Power Applications Manager**

Charlie Bridge comes to us with a solid background in high power CO<sup>2</sup> and Nd:YAG cutting and welding applications. Charlie's role as Applications Lab Manager provides continued support and creative breadth to our customers as we mutually develop new processes and applications. Charlie graduated from San Diego State University with a Bachelor of Science in Electrical Engineering.

#### Mike Klos named Midwest Operations Manager

Mike has 27 years of experience in lasers and material processing, combined with an extensive background in all aspects of beam delivery. His expertise extends to cutting and welding heads, auto-focus systems, seam tracking, fiber delivery and beam analysis. Michael's background will allow him to provide tremendous assistance and



value to customers considering their first laser purchase, replacement of older high maintenance lasers, or expansion of their current production lines.

> Direct Line: 248-660-5131 Office: 248-863-5001 mklos@ipgphotonics.com

#### Tim Webber named Pacific Coast Sales Manager

Tim joins IPG as one of the most recent additions to the Sales team. Residing in the San Francisco Bay area, Tim brings extensive knowledge in a multitude of applications as well as years of sales experience to IPG. His experience ranges from all types of material processing lasers: from high power YAG, CO<sup>2</sup>, to marking lasers. Tim previously worked at Rofin handling their high power YAG and CO<sup>2</sup> lasers, was application manager at Martek/Hobart and most recently handled markers for Trumpf on the West Coast.

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# 2007 TRADE SHOWS & SPEAKING ENGAGEMENTS

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Conference Name LASER 2007	<b>Dates</b> June 18 - 21, 2007	<b>Location</b> Munich, Germany	Booth
Caribbean Association of National Telecommunication Organization (CANTO)	June 24 to 27	Barbados W.I.	B49
Advanced Laser Application Conference (ALAC) at the Boston Marriot Burlington	Sept. 24 - 26, 2007	Burlington, MA	
Fiber to the Home Conference (FTTH) at the Walt Disney World Swan & Dolphin Resort	Sept. 30 - Oct. 3, 2007	Orlando, FL	1326
International Congress on Applications of Lasers and Electro- Optics (ICALEO) at the Hilton in the Walt Disney World Resort	Oct. 29 - Nov. 1, 2007	Orlando, FL	
FABTECH International & AWS Welding Show (FABTECH) at McCormick Place South	Nov. 11 - 14, 2007	Chicago, IL	17150
Productronica	Nov. 13 - 16, 2007	Munich, Germany	

#### Speaking Engagements:

#### **Conference Name/ Lecture & Lecturer**

**America Welding Society (AWS)** Conference on the Explosion of New Processes at the Doubletree Golf Resort

Aug 14, 2007

San Diego, CA

"The Fiber Laser opens up new Opportunities for Laser Welding" - Bill Shiner