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Groundbreaking thermo-photovoltaic devices set new record for energy conversion efficiency

** new InP-based thermo-photovoltaic cells ramp efficiency levels dramatically, up to 12%*

** applications include waste heat recovery from furnaces, CHP generation, domestic boilers*

Ipswich, UK, 13 October 2008 --- CIP Technologies (CIP) today announces a new energy conversion efficiency record for thermo-photovoltaic (TPV) cells. In partnership with the University of Oxford and Wafer Technology, and with partial funding from the UK Technology Strategy Board and EPSRC, a successful three year collaborative research project has delivered first generation single-junction cells with energy conversion efficiencies up to 12%. This compares to 9% from existing, commercially available devices.

TPVs are similar to solar cells, but operate at infrared rather than visible wavelengths, generating electricity directly from heat. They have applications in waste heat recovery from industrial plant such as blast furnaces, combined heat and power (CHP) generation and domestic boilers, as well as silent mobile power generation.

The cells produced by the consortium are based on indium phosphide (InP) materials, rather than the more traditional gallium antimonide. InP offers higher efficiency, low cost growth and fabrication using industry-standard processes, combined with potential to fabricate more highly integrated and complex cells.

Dr David Rogers, TPV Project Manager, commented, "CIP's expertise in InP growth and fabrication continues to demonstrate successful application to new markets and products, and builds on its III-V solar cell expertise to continue to address areas of environmental importance."

The consortium is now working on a second-generation cell design with a more complex, multi layer construction that will improve infrared capture even further. This is expected to extend energy conversion efficiencies to over 15%, significantly widening the range of viable applications for the technology.

On the TPV project, CIP is responsible for epitaxial growth, device fabrication and the fabrication of fully packaged TPV modules. Wafer Technology developed a new range of low cost InP substrates, and the University of Oxford engaged in cell design and device testing.

CIP's Commercial and Contracts Manager, Andrew Bridges, adds: "The advanced technology that has emerged from this project complements solar photovoltaic cells and

significant efficiency gains from the second generation product are expected. CIP is leading the commercial exploitation and volume manufacture of this technology and is actively seeking partners and end users to develop its full market potential.”

The partners in the TPV project are:

CIP Technologies

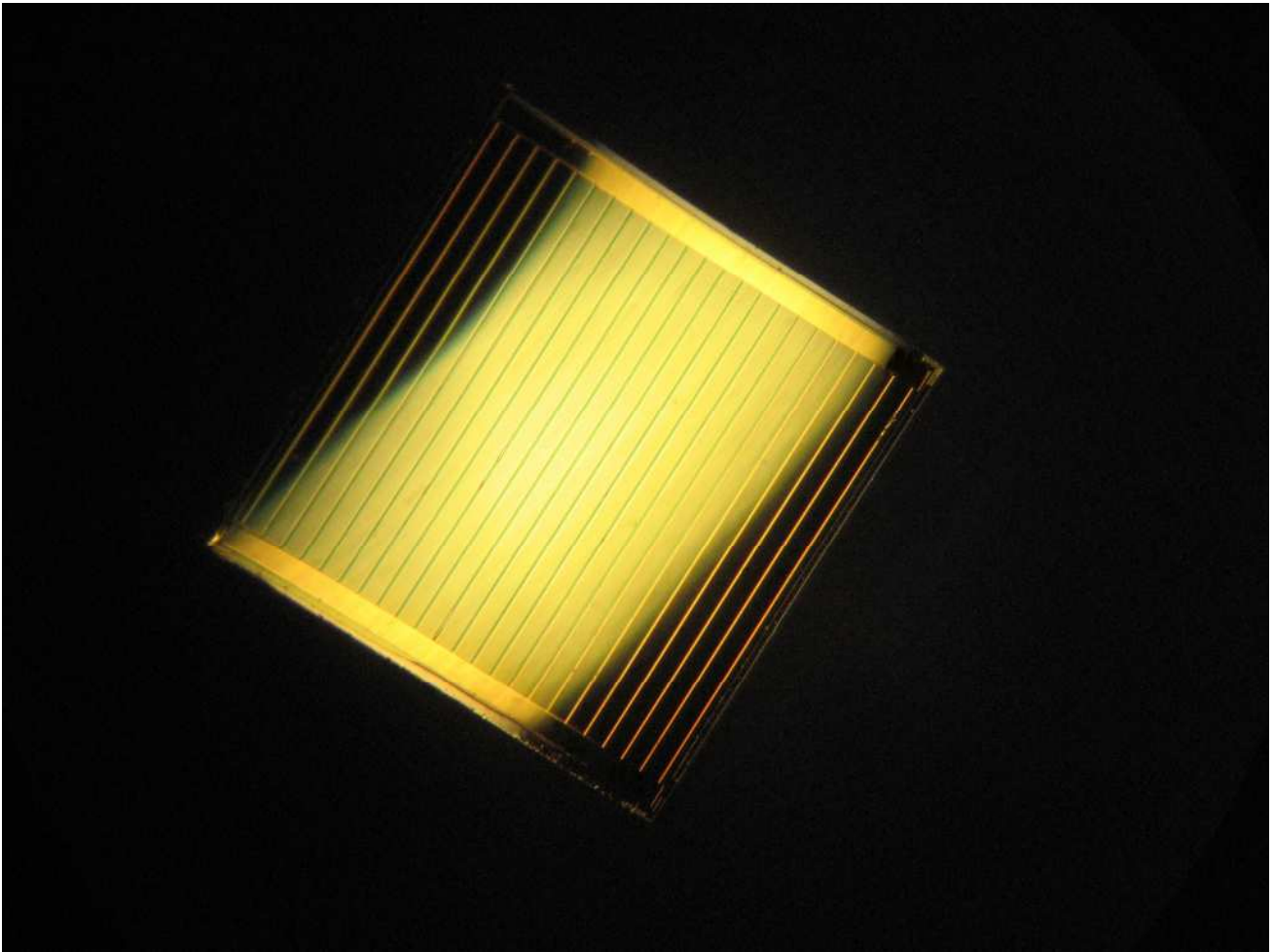
CIP Technologies is the trading name of The Centre for Integrated Photonics Ltd, a leading manufacturer of advanced photonic hybrid integrated circuits and InP based optoelectronic chips, devices, arrays and modules for the communications and defence markets. With over 600 man-years of expertise in photonics and nearly 250 published articles and patents, CIP Technologies refines research into viable, manufacturable products based on leading edge technologies, helping customers develop the photonic products of tomorrow. CIP Technologies is a major provider of technical services and consultancy and its uniquely broad range of competencies is based on world-renowned research, incorporating III-V photonic materials, silicon micromachining, planar silica waveguides and network architecture design and analysis. With state-of-the-art, ISO9001:2000 registered, co-located fabrication, coating, test, validation and pilot production facilities, as well as strategic partnerships with volume packaging providers, CIP Technologies is able to develop and deliver exciting products based on these core competences. (www.ciphotonics.com)

Physics Dept., Oxford University

The Physics Department of the University of Oxford is one of the largest in the United Kingdom, and has a lively and active programme in research which was awarded the highest rating of 5* in both the 1996 and 2001 Research Assessment Exercises. We have over 80 members of academic staff (Professors, Readers and Lecturers) whose work is supported by about 130 technical and secretarial staff. Members of Condensed Matter Physics carry out world-leading research in a wide range of areas, including the structure of ordered and disordered solids, electronic properties, electron correlations in quantum materials, superconductors, spin electronics, nano-materials, quantum information processing, organic molecular crystals, photonic crystals, photovoltaics, energy research, and biological physics (www.physics.ox.ac.uk/).

Wafer Technology Ltd

Wafer Technology, a member of the IQE plc group of companies, manufactures the world's broadest range of III-V substrates (GaAs, InP, GaSb, InSb and InAs) using both VGF and LEC growth techniques. Material is supplied as epi-ready substrates in 2, 3 and 4 inch diameter. The company's unrivalled choice of material types and forms enables it to support almost any customer application. All products are manufactured at the company's Milton Keynes (UK) headquarters according to ISO 9001/14001 certified processes.



Interviews with David Rogers are available on request

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