



Technology Transfer Office

Commercialization Strategy for Nano-Composite Ultra Conductive Metals

Researchers at Cleveland State University have developed a revolutionary technology directed to methods and related tooling for the manufacturing of ultra-conductive and/or ultra-strong Nano-composite copper wire (also referred to as ultra conductive copper or “UCC”). As a platform technology, the intellectual property will be marketed to materials manufacturers, who in turn will supply the ultra-conductive composite materials to equipment manufacturers for use in the production of various end use products in the industrial, electrical, military, and commercial sectors.

I. Scope of the Intellectual Property

Cleveland State University owns the rights to U.S. patent No. 8,347,944, titled “Nano-engineered Ultra-Conductive Nano composite Copper Wire” (UCC) and which was issued on January 8, 2013. A corresponding PCT application (PCT/US2011/065191) was filed on December 15, 2011 and will enter the national stage in the European Union on or before June 17, 2013. Furthermore, CSU will likely secure additional patent protection directed to novel mass production methods and processes for developing ultra conductive copper and other highly-conductive composite metals.

The intellectual property developed, and in the process of development, at CSU is strictly in the field of developing and manufacturing Nano-composite ultra conductive “near raw materials” including, but not limited to, Ultra Conductive Copper (UCC) wire of various sizes and shapes. These materials will have broad applications, including but not limited to, the production of improved electrical bus bars and power transmission lines, among many other types of ultra conductive materials applications.

Once successfully and fully developed, this revolutionary and truly “game-changing” technology will have the potential to dramatically improve the performance and reduce the fuel and energy consumption of virtually all electrical systems and devices. This will facilitate the development of game-changing applications across the board for all military systems such as extreme high-fidelity communication networks (20+ folds increase in the size and data rates), miniaturization of motors, actuators and electrical wiring (5-20 fold factor) for transport vehicles, tanks, aircrafts, UAV’s and naval vessels, etc.

Furthermore, considering that approximately 50% of all energy consumed in the world is by motors and transport systems, this technology will be a huge enabling and energy-saving technology for civilian applications such as in hybrid and electrical automotive manufacturing, among the many other applications.

II. Long term Non-Exclusive Licensing With Mass Producers

As a truly platform technology, CSU should pursue a commercialization path for the technology that will maximize the adoption of the ultra conductive materials in all its potential application areas in order to maximize CSU's return and to spread its potential benefits around the world in the broadest way possible. To this end, CSU will seek to enter into long term non-exclusive licensing arrangements with only mass producers of the raw ultra conductive materials, such as wire and bar producers. These producers will have the incentive to maximize their sales by selling their products to all OEMs in all the various fields of applications for the technology. This commercialization model will ensure the widest possible infiltration of the new products around the world.

Unless absolutely necessary, CSU should not license the technology to OEMs and end users and, more particularly, should avoid entering into exclusive licensing agreements with materials manufacturers in order to maintain a competitive landscape among manufacturers and thus encourage and promote the widespread use of the technology to other users.

III. Temporary, Limited-Term Exclusive Licenses for Validation & Testing by Industrial Partners

As part of the technology development process, there will be a need to collaborate with some end user companies to better understand the potential end use markets and to further develop and refine appropriate materials that will suit the end use applications. In addition, it will be highly beneficial to the development efforts if such partners can engage in testing and validation of said materials and as such, provide critical feedback on the utility and applicability of the materials in the various application environments. Among the benefits that our partners can derive from this arrangement are that they will have the opportunity to exclusively explore the new materials and to develop their own proprietary technologies for the production of end use products before their competitors have a chance to.

Therefore, CSU will also explore granting temporary, limited-term exclusive licenses to each of our industrial "validation & testing" partners for the duration of the development process and for approximately one additional year after the release of the new material to mass producers.