



WELCOME TO TxIS's IP SUBMISSION WEB LINK

Please, ***before*** you start the process, review

http://www.txis.us/txis/global/iptech/TxIS_IP_Submittal_Form.pdf

It has a great amount of information you will find interesting and useful.
It will guide you through the process.

NON-DISCLOSURE AGREEMENT

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INTRODUCTION

For more than a decade, TxIS has worked closely with professors, researchers, scientists, PhD. students, and graduates (“Professors”) from universities, scientific and research institutes and organizations (“Universities”) located in Eastern Europe, the former Soviet Union, and Asia to identify opportunities for them to participate in and contribute to state-of-the-art Western research programs.

TxIS’s Intellectual Property/Technology Transfer Division is a global organization whose principal objectives are to **identify** promising lab-level intellectual properties, inventions, and innovations (“IP”), **support** completion of IP development, and **facilitate** its commercial utilization.

It is our Institute’s general experience that Universities often lack important capabilities required to effectively transition an IP through all the various and diverse steps that begin with an “idea” and end with the sale of a finished “product.” To operate successfully, an “ideal” Tech-Transfer Department would have access to wide variety of private and professional networks within the financial, industrial, technological, marketing, and legal communities to insure optimal outcomes for both the inventors and the University. Unfortunately, most Tech-Transfer Departments are missing one, or more, of these critical elements.

TxIS’s IP / Technology Transfer Division will guide the inventing professors, as well as Tech-Transfer Departments, through this process, utilizing our expertise in these vital areas to enhance the opportunity to successfully sell or license their IPs to Western companies and markets.

In order to receive the highest level of scientific assistance,

TxIS’s Global Advisory Board

consists of:

Dr. Russell Hulse
Nobel Laureate, 1993

Dr. Da Hsuan Feng
Sr. Executive Vice President, National Cheng Kung University (NCKU)

Dr. Alain Bensoussan
Former Chairman of European Space Agency

Dr. Laszlo Kapolyi
Member of the Russian and Hungarian Academies of Science, and
Former Secretary of Industries of the Hungarian Government

Dr. Miroslav Vlcek
DRSC, Vice-Rector for International Relations, Czech Technical University, Prague

Dr. Hasan Pirkul
Dean of the School of Management at the University of Texas at Dallas

Dr. Andrei Zabrodskii
Director of the Ioffe Physico-Technical Institute, St. Petersburg, Russia



Please provide the following information to help us perform an initial technical and market assessment of your IP.

I) **IP Name or Title:**

Neurological - Electromechanical Interface Material for Biomechatronic Prosthesis

II) **Submission Date**

January 15, 2009

III) **Please provide a brief description of the IP** (What does the invention do and how is it novel and quantitatively superior to prior works in this discipline or technology? Please add supplemental pages, if necessary.)

Investigations have been ongoing throughout industry and academia to improve the utility of prosthetic devices provided to people who have lost limbs due to injury or illness. The intellectual property referenced in this submission consists of **a new bioelectric nano-material** that can be used to construct a direct interface between severed nerve endings and a "system-on-Chip "(SoC) semiconductor device. Algorithms embedded in the SoC device, which is connected to the body via the neural interface material, translate nerve impulses from the brain that comprehend the patient's intentions (or alternatively, translate incoming impulses from external biomimetic sensors that provide sensory feedback to the patient) into mechanical actions (or nerve stimuli). The invention is envisioned for use with a battery-operated biomechanical prosthesis containing embedded biomimetic sensors which provide external stimuli to the neural interface, a remotely placed transceiver that interacts with the body and the sensors via the neural interface, which, in turn, is connected to a closed-loop servo-motor controller that converts processed electrical information from nerve impulses or the embedded sensors into mechanical actions. The system, as described, could greatly improve the quality of life for those patients currently using existing prosthetic technology by allowing them to execute many more of life's daily tasks.

IV) **Please list the technologies or disciplines pertaining to your IP.**

To view a representative set of disciplines, visit the TxIS website at <http://www.txis.us/txis/global/research/researchareas.aspx> .

Each of the major categories expands into more detailed disciplines.

1. **Material Science of Nanotechnology & Nanostructures**
2. **Nano-materials**
3. **Nano-sensors**
4. **Adaptive & Advanced Control Algorithms & Systems**
5. **Signal Processing of Physiological & Biomedical Signals**



V) Please indicate the development status of your IP. (Please select one)

- Concept or theoretical stage, not yet proven
- Modeling or other abstract evaluation
- Prototype with favorable lab results
- Development complete with proven results

Additional Comments:

The process technology used to create the new nano-material has been refined from earlier work done by this University, as well as at other institutions. A 1st-generation prototype of the interface material has been created and limited testing has been done to confirm viability of the approach.

VI) Has any of the following taken place concerning your IP? (Please select as many as are applicable)

- Patent application
- Publication
- Other public disclosure
- University Review
- IP export request
- Public demonstration
- Prior technology transfer arrangement or disclosure

Additional Comments:

A patent application is being prepared, but no disclosure has been made to date. Publication is planned for upcoming Conference on Biomedical Engineering (October 2009), but is contingent on completing patent work in the Czech Republic.



VII) **What financing is required (in USD) to bring the development of this IP to a level necessary for a patent application?** (Please list the major tasks, time, and cost required – add more lines, if needed).

	Task Description	Time (Weeks)	Task Cost (USD)
1	Complete preliminary interface material processing evaluation	10	30K
2	Complete evaluation of 1 st -generation prototype interface capabilities	16	\$48K
3			
4			
	TOTALS	26	\$78K

Additional Comments

Work to develop useful algorithms and subsequent development of the SoC are not comprehended in the scope of our current work. However, we do plan to evaluate how electrical impulses are received transmitted through the interface material and how those impulses can be processed to create useful mechanical outcomes. That effort is not comprehended in the above table.

VIII) **Please provide complete contact information for each inventor of the IP being submitted to TxIS for evaluation.** (You may attach additional pages if there are additional inventors).

In addition, please also include the CV for each inventor with the IP Submission Form.



TXIS® CONFIDENTIAL IP SUBMITTAL FORM TxIS / IP-002-1_a_083109

By submitting this IP to TxIS for evaluation, the Inventor(s) are representing to TxIS that:

- A) Each and every inventor who contributed to the creation of this IP is listed below, and
- B) The submission herein is being performed in complete compliance with all organization policies and all local, state, and national laws applicable to the Inventor(s) submission of the IP to TxIS, and
- C) Inventor(s) submission of this IP to TxIS serves as a legal signature and acceptance of the terms contained in this complete document by the Inventor(s) listed below.

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NOTE PAGES







