

Florida High Tech Corridor

1999-2000 USF "External Matching Grant" Project Awards

Investigator, Proposal Title and Description

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**College of Engineering**

**"Analysis of Digital Cellular Protocols for the Software Development/Hardware Implementation of Dual-Mode Prepaid Cell Communications"; P.I. Lawrence Dunleavy; Companies- SATX / DEBITFONE Inc.; Award-\$61,278; Match-\$181,000**

Summary: This telecommunications / software / hardware development project proposes DFI's intelligent prepaid solution for the primary digital protocols of Code Division Multiple Access (CDMA) and / or Time Division Multiple Access (TDMA) for implementation in a dual-mode (analog and digital) handset.

**"Six Sigma Methodologies for Manufacturing Improvements"; P.I. Les Cahoon; Companies- Ditek, K-Byte, Dovatron, & Southern Manufacturing Technologies; Award-\$50,000; Match-\$227,900**

Summary: Develop "Six Sigma" training modules through a pilot program with participating industries. The purpose of the "Six Sigma" approach is to provide tools that tell how good products, services, and processes really are in comparison to similar products and processes.

**"On-Wafer Metrology for 100 GHz Microelectronics"; P.I. Lawrence Dunleavy; Companies-Raytheon, Alliant, Lockheed Martin, GGB Industries, Maury Microwave. Noise/Com, Anritsu; Award-\$145,000; Match-\$387,770**

Summary: Develop capability at USF that will be unparalleled in the state and will rank among the best labs globally. There are numerous ways of utilizing this new measurement environment in project areas such as MEMS, device and circuit characterization, CAD modeling, and wireless systems development.

**"Development of Transparent Electrode for Mercuric Iodide Photo-Detectors"; P.I. Chris Ferekides; Company-Constellation Technology; Award-\$58,000; Match-\$116,000**

Summary: Radioisotope guide surgical probes are used in a variety of clinical procedures. The project will develop material and methods for electrodes compatible with the surface chemistry of mercuric iodide. Thus enabling the development of mercuric iodide photodetectors.

**"Improved Telecommunications Performance of Existing Satellite Systems"; P.I. Rudy Henning; Company-Custom Manufacturing and Engineering; Award-\$35,000; Match-\$1,035,000**

Summary: This project focuses on a more cost/performance effective way of avoiding the premature outdated of equipment through extending the life of the equipment. The project is funded for \$1,000,000 by the DOD.

**"Wideband Wavelet-based Orthogonal Multipurpose Signaling for Broadband Wireless Communications"; P.I. Vijay Jain; Company- Intersil Corporation; Award-\$15,000; Match-\$30,000**

Summary: The work plans to address the problem of bit rate and the intrinsic nature of the wireless channel and is based on a new class of signaling pulses (OWSS pulses).

**"A Media Gateway Control Protocol (MGCP) Implementation for Video and Voice over Packets Networks"; P.I. Wilfrido Moreno; Company-Telenix Corporation; Award-\$75,479; Match-\$335,000**

Summary: Utilizing proprietary hardware and embedded software the project will develop a Media Gateway Control Protocol stack which will be easily portable, to develop a Telenix VoIP card that will work well with European standards, and to study current video over IP standards for video transmission over wide area networks.

**"Creating a Simulation Environment to Build and Test Very Large Telecommunications Databases"; P.I. Rafael Perez; Company-Computer Systems and Services; Award-\$41,180; Match-\$87,136**

Summary: The objective of this project is to implement a software simulation where very large telcom databases can be built and large numbers can be created and made to concurrently access the databases. This environment will serve to optimize and optimize the performance of Circuit Vision, Oracle-based client/server system.

**"Solder Joint Reliability for Ball and Column Grid Array Components Fielded in a Space Environment"; P.I. Muhammad Rahman; Company Honeywell Inc.; Award-\$10,620; Match-\$21,240**

Summary: The project will investigate fundamental mechanisms of failure of ball and column grid arrays under combined thermal and mechanical loading.

**"Digital Resampling at Intermediate Frequencies"; P.I. Arthur Snider; Company-Intersil Corp.; Award-\$10,000; Match-\$20,000**

Summary: Investigation of third generation wireless services and ways of incorporating computational procedures for the demodulation process.

**"Development and Design of Multi-purpose Multi-product Supercritical Fluid Processing Systems"; P.I. Aydin Sunol; Company- MEI Corporation; Award-\$100,000; Match-\$200,000**

Summary: The project involves software development, simulation and training, process prototyping, and development of a multi-purpose design to be used in manufacturing a portfolio of products, e.g., biomedical, microelectronics, etc.

**"Micromachined Components and Packaging for a K-Band Receiver"; P.I. Thomas Weller; Company-Raytheon Systems; Award-\$25,000; Match-\$50,000**

Summary: The goal of the project is to develop state of the art technology for a new generation of microwave radiometers.

**College of Arts and Sciences**

**"Development of Radiation Resistant Optical Fiber Polymers"; P.I. Julie Harmon; Company-Honeywell Inc.; Award-\$18,000; Match-\$36,000**

Summary: Develop radiation resistant optical fiber polymer systems by characterizing materials and their resistance to radiation effects. The purpose is to make better space products.

**"Characterization of Novel, Highly permeable, Contact Lens Materials"; P.I. Julie Harmon; Company-Benz R&D; Award-\$25,000; Match-\$50,000**

Summary: To develop materials for a high quality soft contact lens using hydrophilic polymers.

**College of Medicine**

**"Visualization and Biochemical Modeling of the Human Larynx"; P.I. Don Hilbelink; Company- Gold Standard Multimedia, Inc.; Award-\$20,000; Match-\$50,000**

Summary: To produce surface and volumetric element models of the anatomical components of the human larynx for use in 3-D visualization and biomechanical simulations for surgical study.

**"Layton BioScience/USF Neurodevelopment Program"; P.I. Paul Sanberg; Company-Layton BioScience; Award-\$250,000; Match-\$500,000**

Summary: Development of treatment for Tourette's, stroke, Parkinson's, and neurodegenerative diseases.

**"Gene Expression during Cartilage Repair"; P.I. Joachim Sasse; Company-CO.DON; Award-\$75,000; Match-\$150,000**

Summary: A new tissue engineering technology, Autologous Cartilage Transplantation (ACT), uses cultured chondrocytes, isolated from the patient's own cartilage, expanded in vitro, and returned to the damaged site for repairing deep cartilage defects. This project will attempt to use gene technology to identify the non-aged cells which are more appropriate for in vitro growth.