

## U.S. PATENTS (1997)

APL staff members received the following U.S. patents during 1997:

### **WS Devereux, MH Boehme, L Linstrom, TR McKnight Jr, RC Moore, JR Meyer, PR Snow, and PD Grimm**

*Global Positioning System (GPS) Linked Satellite and Missile Communication Systems*, No. 5,594,454 (14 Jan): A small, multifunction device called the GPS/Telemetry Transmitter (GTT) that can recover telemetry data from missiles, spacecraft, balloons, or any moving platform or vehicle, and generate high-accuracy trajectory estimates using GPS data is disclosed. Additionally, the concept underlying the GTT of transmitting high-data-rate telemetry and instrument data concurrently with transdigitized GPS data is incorporated in a GPS-Linked Transponder (GLT) resulting in a simpler and cheaper satellite positioning system.

### **JR Champion**

*Portable Rapidly Erectable Discone Antenna*, No. 5,608,416 (4 Mar): A lightweight, portable, quickly assembled, wide band, discone antenna for high-frequency ground wave communication.

### **DW Blodgett, CH Lange, PJ McNally, and DD Duncan**

*Thin Film Vanadium Oxide Spatial Light Modulators and Methods*, No. 5,608,568 (4 Mar): Vanadium dioxide (VO<sub>2</sub>) based infrared spatial light modulators in four embodiments are disclosed: (1) A VO<sub>2</sub> thin film is deposited on a planar diode array. (2) and (3) VO<sub>2</sub> is deposited on a thermoelectric array, which can be an array of doped lines of p and n type material or a conductive material between two electrical contacts. (4) A VO<sub>2</sub> thin film deposited on a substrate that is spaced a distance, *L*, from an array of vertical-cavity surface-emitting lasers for heating the VO<sub>2</sub>.

### **BG Boone and BE Grabow**

*High-Temperature Superconducting Thin Film Nonbolometric Microwave Detection System and Method*, No. 5,610,510 (11 Mar): A high-speed, highly sensitive microwave detection system and method, which uses the nonbolometric detection mechanism in a high-temperature superconducting thin film detector.

### **AL Lew, JJ Suter, and BQ Le**

*Integrated Power Source*, No. 5,644,207 (1 Jul): A self-contained, small, lightweight, portable, renewable, modular integrated power source. The power source consists of solar cells that are laminated onto a solid state polymer battery, which, in turn, is laminated onto a substrate containing circuits that manage the polymer battery charging.

### **JC Spall**

*Method and Apparatus for Model-Free Optimal Signal Timing for System-Wide Traffic Control*, No. 5,668,717 (16 Sep): A method and apparatus for model-free, real-time, system-wide signal timing for a complex road network provides timings in response to instantaneous flow conditions while accounting for the inherent stochastic variations in traffic flow through the use of a simultaneous perturbation stochastic approximation algorithm.

## FOREIGN PATENTS (1997)

APL staff members received the following foreign patents during 1997:

### **AL Newman and WD Stanbro**

*Phase Sensitive Differential Polarimetry Technique and Apparatus*, No. DE 690 27 045 T2 (Germany) (16 Jan): A differential polarimeter is disclosed for detecting changes in optical rotation between a test cell and reference cell.

### **QE Dolecek**

*Memory-Linked Wavefront Array Processor*, No. 115,462 (Korea) (21 May): A Memory-Linked Wavefront Array Processor (MWAP) is disclosed, which computes a broad range of signal processing, scientific, and engineering problems at ultra-high speed. The MWAP is an array of identical programmable processing elements linked together by dual-port memory elements that contain a set of special purpose control flags. All communication in the network is done asynchronously via the linking memory elements, thus providing asynchronous global communication with the processing array.

### **S Yamaguchi, RS Potember, and CA Viands**

*Electron Density Storage Device*, No. 0 582 290 (Europe) (29 Oct): A method and device providing very high density information storage on an organometallic DCNQI charge transfer data storage medium. The medium is switched from one state to another through the application of an electric field to the medium by the probe tip of a scanning tunneling microscope, resulting in an observable change in the electron density of the surface of the medium.