



**David Pedder**

**Consultant – Microtechnology TWI Ltd**

"The Role of System-in-Package and Passive Integration in Advanced Packaging", David Pedder, TWI".

The past decade has seen the emergence of a range of System-in-Package (SiP) technologies driven by the relentless demands of the portable and consumer electronics industry for ever-greater product functionality and for improved performance at ever-reducing costs. System-in-Package technologies provide a system or sub-system level of functionality within a single package outline and combines multiple integrated circuit die with passive and other supporting components. The ability to integrate devices and to mix technologies within a standard package outline can lead to smaller footprints than standard SMT implementations, and to improved performance, lower NREs and reduced New Product Introduction (NPI) cycle times when compared with the System-on-Chip (SoC) option and, most importantly, to useful costs savings at the system or sub-system level. Passive Integration provides a further series of size, weight, performance and costs benefits that nicely complement the adoption of SiP technologies. This paper will review the present and the future role of System-in-Package and Passive Integration Technologies in Advanced Microelectronics Packaging.

David Pedder joined TWI in October 2001 with 30 years R&D and industrial experience in the area of advanced electronic materials, interconnection and packaging technology. He is presently a Consultant in the Specialist Materials and Joining Section within the Advanced Materials and Processes Group at TWI, and was formerly the Director of the EPPIC Faraday Partnership. He is a member of the International Microelectronics and Packaging Society (IMAPS-UK) and the EPSRC Peer Review College.

He also serves as an expert reviewer for the European Commission. Prior to joining TWI David served as Chief Technology Officer for a company designing and manufacturing micro-miniature RF modules using thin film integrated passive component technology. David has also held a visiting professorship at the University of Newcastle-upon-Tyne. His interests include surface mount technology, advanced flip chip solder bonding, multichip modules and system-in-package, materials and device processing, integrated and embedded passive component technologies. David has an M.A. in Natural Sciences and a Ph.D. in Materials Science from the University of Cambridge. He was awarded the GEC Nelson Gold Medal for Technological Achievement in 1994.

