

**Mark Dowsett**  
**European nomination for SIMS International Committee**

**Position: Professor of Physics, Group Leader Analytical Science Projects  
(ASP)**

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I have worked in the field for over 30 years, specializing in the development of instrumentation and methods for ultra low energy dynamic SIMS. I invented the floating low energy ion gun (FLIG™) and I designed the commercial version (for Ionoptika Ltd.) which became internationally successful on quadrupole SIMS tools. I also designed the secondary ion optics for the Atomika 4550 and 4600 instruments, the former to match the extremely low impact energies (down to 120 eV) of which the FLIG is capable, and the latter for highly reproducible 300 mm wafer analysis. In the early 1990s I also developed the secondary ion optical system for the Kratos S1030, the world's first ultra low energy magnetic sector SIMS, a design which has had a significant influence on later magnetic sector instrumentation. With colleagues such as Clegg, Wittmaack and Vandervoort, I contributed to the concept of the altered layer in dynamic SIMS, and explored the possibilities of analysis in the top few nm of a sample. I was responsible for a useful mathematical description of the SIMS response function (two semi-exponentials convolved with a Gaussian) now the basis of ISO 23812:2003. Recently, I have been working on X-ray microscopy techniques which, unlike SIMS, are capable of analyzing a surface in a native or controlled environment (liquid or gas). These are complementary to a new type of uleDSIMS spectroscopy which we are also developing.