Disruptive Forces: Transforming Industrial Materials Technology
Summary of Break-out Meeting Discussions

There were four break-out sessions during the course of the meeting, and a summary of the comments made by the four rapporteurs is given below.

It was absolutely the view that translation of research and trans-disciplinary research were laudable objectives, together with serious engagement of industry with undergraduate and graduate students and postdoctoral researchers. A number of methodologies to facilitate research translation and innovation were discussed, including those to address SMEs particularly. These included: local university research teams being proactive in identifying and linking with local SMEs and promoting communication; the offering of CDT first-year graduate student projects at no cost to the SME; the role of larger technology companies driving innovation and change through product specification; the importance of communication and dissemination of information by the professional institutions (IoM^3, IMechE); long-term, sustained engagement between university researchers and industry specialists, and the importance of postgraduate student and postdoctoral researcher placements in industry.

Engagement between industry specialists and undergraduate, postgraduate and PD researchers was also highlighted as being key to generating interest and enthusiasm and importantly awareness of the scientifically serious, and often hard, problems encountered in industry. While recognising the cost to companies of intense engagement with students and researchers, its importance was agreed. Funding schemes to facilitate industry uptake of research and potentially innovation, provided by EPSRC (eg the Sandpit scheme, the impact acceleration fund, network grants), were also considered.

The celebration of the build-up of UK expertise in nuclear new build was to be encouraged. The uptake of research by SMEs was recognised to be difficult but it was suggested that supply chain companies could be more proactive in developing innovation (as opposed to responding to customer demands). The Fraunhofer system in Germany together with the UK Catapult initiatives were identified as potentially important for research translation. The group cautioned against a silo approach to research interactions with industry in which science and technology could be compartmentalised.

The potential impact of metal physics in industry was clearly recognised and accepted and that there exists market pull. The skills shortage in metals physics, as opposed to other branches of physics, was considered to arise from a perception of the subject being less fashionable and this this was regrettably also influencing availability of funding. It was hoped that recent large-scale projects (eg x-ray laser shock experiments, massively parallel computing) would start to mitigate this. Interaction with SMEs was thought most likely to be best achieved by academic consultancy. Academic-industry engagement was encouraged through intense one-to-one discussion, importantly with the academic being mostly in listening mode.

The EPSRC programme grant HexMat was recognised to be an example of the better integration, and the pulling together, of a broad range of techniques and skills in experimentation and modelling which is progressively developing in research. It was commented that a divide between engineering and physics was not necessarily helpful in research translation, and that the necessity for certification by regulatory bodies in the aero and nuclear industries had the potential to generate barriers to innovation.