Fundamentals and Numerical Simulations in High Temperature Corrosion and Protection

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Presented in this focus issue of *Oxidation of Metals* are key papers that deal with fundamental aspects associated with the high-temperature corrosion of materials. Such fundamental aspects can include: oxide scale adherence; early stages of oxidation; selective depletion of alloying elements; void formation; minor-element effects; long-term behavior; and transport properties. Chromia-, alumina- and zirconia-scale forming systems are discussed with applications spanning nuclear power generation to thermal barrier coatings for aeronautics. The important coupling among chemical reactions, solid state diffusion, phase transformations and mechanical properties is apparent in several of the papers and shows the richness and the complexity of high-temperature corrosion processes.

The following key papers stem from presentations that were given at the eighth international conference on high temperature corrosion and protection of materials (HTCPM2012), which was held at Les Embiez Island, France, on the 20–25th of May 2012.

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