Symposium 27:
Synthesis and Processing of Materials using Electric Currents and Pressures

Electric fields and currents are powerful processing parameters in addition to the temperature and time available in traditional sintering. Applications of electric current have been leveraged to produce materials with unique properties and/or increase processing efficiency. Of particular note is the widely spread (and continuously increasing) use of the technique often referred to as Spark Plasma Sintering (SPS), Field Assisted Sintering Technique (FAST) and Current Activated Pressure Assisted Densification (CAPAD) among others. This symposium is in the spirit of previous symposia on SPS that were held in conjunction with past PACRIM meetings beginning with Pacrim7, Hawaii. The success of these symposia provided evidence of the continued worldwide growth of research and development activities in this field. The symposium is aimed at providing a forum for scientists and engineers to present and discuss results of various observations on a wide variety of topics related to current assisted processing and synthesis of materials. Experimental and modeling papers covering both fundamental as well as application-oriented studies are solicited.

<PROPOSED SESSION TOPICS>

•Fundamental investigations on electric current/field and/or pressure on materials processing
•Modeling and simulation studies of current activated densification
•Consolidation of nanocrystalline materials
•Property evaluation of materials processed using electric currents including thermal, mechanical, optical, electrical and magnetic properties
•Field activated Synthesis
•Flash Sintering

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<INVITED LECTURES>

Tentative invited lecture information is posted in the following URL;
http://www.ceramic.or.jp/pacrim13/list_of_invited_speakers.html#27