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Materials Thermal Behavior during Laser or Electron Beam Irradiation

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closed (10 November 2022)

Message from the Guest Editors

We propose a Special Issue on materials' thermal behavior under laser and/or electron beam irradiation, with a special emphasis on applications, mathematical models, and the impact on social and engineering fields.

Two centuries on since the discovery of the first heat equation by Fourier, the subject continues to be of vivid interest. New models describing laser–matter thermal phenomena have been developed, such as: i) micro/nanoscale heat transfer during ultrashort laser irradiation of materials, ii) ultrafast melting and re-solidification, iii) two temperature models with extensions, or iv) non-Fourier models with consideration of relaxation times, as well as, possibly, vaporization and plasma generation.

Materials to be considered with this Special Issue extend from metals to ceramics and biomaterials, either from an experimental or analytical/numerical simulations approach. Relevant examples of laser versus e-beam irradiation such as polymers, biopolymers, elastomers, hydrogels, starch, food, and so on and similar ones are very much welcomed.

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Message from the Editor-in-Chief

Materials (ISSN 1996-1944) was launched in 2008. The journal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites, advanced materials characterization, porous materials, manufacturing processes and systems, advanced nanomaterials and nanotechnology, smart materials, thin films and interfaces, catalytic materials, carbon materials, materials chemistry, materials physics, optics and photonics, corrosion, construction and building materials, materials simulation and design, electronic materials, advanced and functional ceramics and glasses, metals and alloys, soft matter, polymeric materials, quantum materials, mechanics of materials, green materials, general. *Materials* provides a unique opportunity to contribute high quality articles and to take advantage of its large readership.

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