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## Materials Today: Proceedings

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## Proceedings of the international conference on advanced materials for clean energy and health applications (AMCEHA 2019)

Demand for clean energy is going to be immense in the future and it is of utmost interest for the research community to work on novel ideas and find solutions for the challenges facing the clean energy sector. Growing world population also demands focus on advanced health technologies. Development in new functional materials along with current rapid progress in nanotechnology could provide significant breakthroughs in the field of clean energy and health sector. Over the past decade, advent of metal oxides, metal hydrides, oxyhydrides, perovskites, organic-inorganic hybrid structures, composites and chalcopyrites in the form 2D & 3D films, hetero structures and nanomaterials has revolutionized the clean energy and advanced health technologies. Contributions of the international conference on advanced materials for clean energy and health applications (AMCEHA 2019) held on February 6-8, 2019 in Jaffna, Sri Lanka have addressed the challenges related to these topics. Several key clean energy and health sectors were identified and impact of novel advanced nanomaterials on the sectors were addressed. The conference has been divided into six symposia focusing on solar energy, wind energy, hydrogen energy & storage, and advanced functional materials for photocatalytic, CO<sub>2</sub> capture & storage, bioenergy and health applications. Novel materials & concepts for converting solar energy into electrical energy by solar cells, into chemical energy by photoelectrochemical solar water splitting, for photocatalysis, energy storage devices, solar thermal application, hybrid power systems power integration and smart grids were focused under solar energy applications. Key issues on other clean energy sectors such as wind turbine aerodynamics, power generation technologies, biomass & biofuel, advancement in fuel cells, smart materials for zero emission buildings and hydrogen storage were discussed. Advanced functional materials for smart fabrics, regenerative medicine, drug delivery,

prosthetics towards health applications and its environmental impact were also under the focus of the Conference.

There were six invited talks at each Symposia. More than 300 attendees from various research institutes, universities and colleges of Norway, Srilanka, India, Canada, Australia, UK, Bangladesh, Sudan, Sweden, Finland, Egypt, China, Japan and USA have participated in the Conference with oral and poster contributions.

Among the contributions submitted to the Proceedings twenty papers have been recommended for publication in the Proceedings. The contributions will surely play big role in materials development for the above applications. We hope that readers will find the papers interesting and stimulating further discussions in the field. Guest editors of the topical issue are thankful to Dr. Stewart Bland, Executive Publisher at Elsevier, to V G Venkatesh, manager of the Elsevier journal Materials Today, and the technical staff for support of the initiative and made this topical issue possible. Also, we thank all contributors of selected papers presented herein.

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