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**Foreword for the IJHE Special Section on E-MRS 2017 Fall Meeting Symposium C on “Multifunctionality of metal hydrides for energy storage – developments and perspectives”, Warsaw-Poland, 18-21 September 2017**

The increasing environmental and health concerns over the use of fossil fuels as energy source call for an urgent transition towards sustainable, carbon-free and reliable energy technologies. To support such an epochal transition the development of advanced and efficient energy storage systems that can enable a synergic exploitation of intermittent and delocalized renewable energy sources is mandatory. In this regard, hydrides based on metals and alloys have proven to play a central, enabling role. Metal hydrides encompass a broad array of structures and unique physicochemical properties that make them appealing for a large breadth of applications. Owing to their high-energy storage density as well as high-ionic conductivities at ambient temperature, metal hydrides clearly offer an attractive and versatile platform of materials for energy applications spanning from solid- state hydrogen storage, to ion conductors for batteries or thermal energy storage.

In order to set a forum to discuss the latest achievements in the field of energy storage and conversion using metal hydrides, Symposium C “Multifunctionality of metal hydrides for energy storage – developments and perspectives” was organized within the frame of the E-MRS 2017 Fall Meeting that took place in Warsaw-Poland between 18-21 September 2017. In this event, young and established leading scientists were brought together from around the world to present the advances of the intense worldwide research in the field, to exchange ideas as well as to identify major challenges and hot-topics for future developments towards efficient solutions for energy applications. In this symposium, special emphasis was placed on the use of metal hydrides as hydrogen storage materials, solid-state conductors, materials for battery electrodes, and materials for solar thermal heat storage. In addition, the challenges related to the industrial implementation of metal hydrides in the above-mentioned fields was also a topic of discussion. The symposium was supported by the Marie Curie Initial Training Network ECOSTORE (<http://www.ecostore-itn.eu>), fostering joint research and training on novel metal hydride materials and systems for both hydrogen and electrochemical energy storage.

This Special Section comprises a collection from selected contributions to the E-MRS 2017 Fall Meeting Symposium C.

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