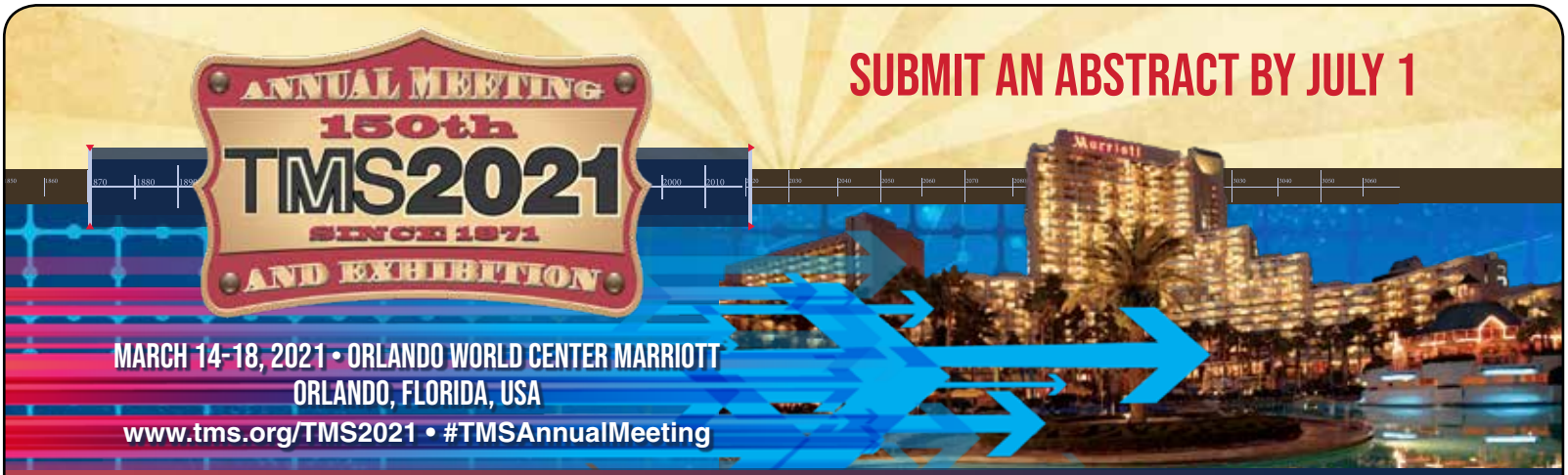

SUBMIT AN ABSTRACT TO:

ADDITIVE TECHNOLOGIES

ADDITIVE MANUFACTURING: MATERIALS DESIGN AND ALLOY DEVELOPMENT III—SUPER MATERIALS AND EXTREME ENVIRONMENTS

Additive manufacturing offers a new paradigm in part design for complex architectures; however, the availability of additive-capable existing or new materials is minimal. The need for materials and alloys designed specifically for additive technology is increasing rapidly, particularly in extreme environments. Successful operating in extreme environments requires carefully selected materials and component designs.

Conventional alloys are designed based on constraints of conventional materials processing and manufacturing technologies such as casting, forging and hot rolling or sheet metal forming. The unique solidification conditions during these processes have made expanding current conventional alloys to Additive Manufacturing (AM) difficult and made the introduction of new designed materials a technology challenge. What is more, the intrinsic properties of AM (i.e., rapid solidification, melt pool dynamic, cyclic heat treatment) can be exploited to design novel materials. Integrating materials, design, and manufacturing innovation is a new frontier that requires critical attention to harness the full potential of AM technology.

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