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# **ABSTRACT**

The shape and material complexities allowed by Additive Manufacturing have favoured a new research trend coined as 4D printing, and which is about Additive Manufacturing of Smart Materials. While the manufacturing aspect of 4D Printing has been intensively investigated, a little has been done to empower designers so that they can efficiently tackle design problems solvable by this new emerging technology.

A 4D Printing design problem is ways more complex than a conventional one in that, it involves designing a change strategy consistent with the desired functionality, designing a structure which is additively manufactural, and which is made (partially or not) of stimulus responsive Smart Materials.

The paper is a contribution is made towards this latter aspect of 4DP. Smart materials are extensively researched, especially as regards syntheses, characterization, constitutive behaviour modelling, etc. As such their physical fundamentals are well understood, however using them by non-experts is still challenging. After a brief review of 4DP and the Smart Materials realm, and an outline of what designers may need, a platform allowing designers to rapidly explore the design space around SMs in a physically realistic way and on a voxel, basis is proposed. It is shown how such platform can expedite the design process with Smart Materials.

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