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# Latest development in virtual casting of lightweight metals

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## ABSTRACT

The increasing use of lightweight metal castings in critical automotive and aerospace structures has required improved quality, with more reliable and quantifiable performance. Metal casting processing is very complex and often involves many competing mechanisms, multi-physics phenomena, and potentially large uncertainties. The most effective way to optimize the processes and achieve the desirable mechanical properties is through the development and exploitation of robust and accurate computational models. This paper reviews the latest advances in computational tools for lightweight shape casting processing and discusses the opportunities and challenges for future development of virtual casting.

**KEYWORDS:** virtual casting, lightweight metals