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Application of Computational Methods in Support of Steel Grade Development

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Substantial research efforts are underway to develop advanced high-strength sheet steels mainly for automotive applications. The automotive industry is challenged by growing environmental concerns, regulatory pressure, safety requirements, and ever-increasing consumer expectations. Vehicle lightweighting without sacrificing occupant protection in a collision is critical in improving fuel economy. The steel industry is experiencing increased competition for lightweight material alternatives, and developing higher-strength steel grades with adequate formability is of great importance to providing such solutions and maintaining a strong steel presence in future vehicle architectures. Dr. De Moor's talk will review some approaches pertaining to alloying, processing, and microstructure formation to develop these novel steel concepts, as well as the application of computational tools. Opportunities to further expand the use of computational methods toward accelerated development of these grades also will be highlighted.

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