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## Geometry and algebra for computational science and engineering

### Abstract

Mathematics have had a striking impact on many other fields that has been ongoing for centuries, but this has accelerated greatly the last decades. Indeed science and engineering nowadays builds on modeling, analysis, and computer simulation for which the mathematical sciences are a natural language. In this talk I will report on my experiences on how abstract mathematical constructions in algebra and differential geometry can be transformed into algorithms and software that provide elegant solutions to prominent computational and engineering problems.