Atomic and Molecular Collisions:
What are they, and what are they good for?

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Atomic and Molecular Collisions
What are they?

- **Collisions on the atomic scale** go on all around us
- Difficult to calculate:
  - Governed by the Laws of Quantum Mechanics
  - Countably infinite discrete spectrum
  - Uncountably infinite target continuum
  - Charged particles interact to infinite distances
  - Multicentred for proton and positron collisions
- Solved by the Convergent Close-Coupling method
  - Valid at all energies and for all collision processes
  - Over 450 publications with 200 coauthors attracting over 11,000 citations
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The primary motivation is to provide accurate collision data for science and industry:

- Fusion research
- Neutral Antimatter creation
- Astrophysics
- Lighting industry
- Medical imaging
- Medical therapy
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