Cantera provides an open source software suite that helps users solve problems involving thermodynamics, chemical reaction rates, and fluid transport processes. They maintain a robust library with a user-friendly interface for scientific computation of physical phenomena that involve thermodynamics, chemical kinetics, and mass transport.

**APPLICATIONS**

- Modeling composition of Jupiter and Saturn's atmosphere
- Modeling photodissociation of water in comets
- Used to solve example problems in the textbook, “Introduction To Combustion Concepts” by Turns and Haworth

**PLANNED FEATURES**

- Python interface with automatic unit conversion from customary systems to the SI system
- Adaptive preconditioning for the solution Jacobian
- Couple with computational fluid dynamics software
- Plasma kinetics and reactions with a distinct electron temperature
## PROJECT NEEDS

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add a new thermodynamic model</td>
<td>$5,000</td>
</tr>
<tr>
<td>Overhaul feature and model documentation</td>
<td>$15,000</td>
</tr>
<tr>
<td>Overhaul equilibrium calculations and solvers</td>
<td>$25,000</td>
</tr>
<tr>
<td>Couple with computational fluid dynamics software</td>
<td>$20,000</td>
</tr>
</tbody>
</table>

For more information on Cantera, including our governance structure and project roadmap, please visit:

https://cantera.org/

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