Computer Modeling of Mirror Edge Polishing

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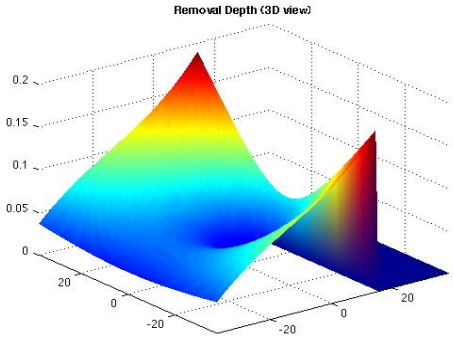
Concept

- The removal depth for when the tool overhangs the edge of a mirror is a function of several parameters
- Develop a model to analytically predict the removal depth at the edge of a mirror based on 2 key parameters:
  - Amount of overhang
  - Tool Stiffness

Technical Challenges

- The effects of the parameters are not fully understood
- Initial testing shows that the removal depth is a complex combination of several parameters



Approach

- Create an initial model which predicts the removal depth for an infinitely rigid tool, thus eliminating the 2nd parameter
- Add in the second parameter to compensate for the effect caused by the flexibility of the tool
- Perform physical testing of the edge-polishing process to validate and refine the algorithms for the parameters

Value

- This would be the first analytical model to accurately predict the removal depth in mirrors during the edge-grinding process
- Would allow the edge-tooling process to be optimized to save time and effort by knowing how to polish the mirror edge all at once, instead of guess-and-check methods

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