Abstract Evaluation

Name of Editor: Claire Cook

Identify the below sections in the abstract – if you identify them, copy and paste the text/summarize as instructed. In all cases, add comments if: something is missing, the text could be made clearer and/or the arguments stronger.

* Started with one or two facts that relate to the problem statement (copy them here)

The asteroid (16) Psyche is the largest asteroid classified as an M-type in the Tholen asteroid taxonomy.

M-type asteroids are characterized by their uniquely featureless infrared spectra, which may be indicative of these objects being the stripped cores of early, differentiated planetesimals.

* Explained why these facts are important (copy line here)

If true, this would mean M-type asteroids offer a rare opportunity to study the exposed cores of terrestrial planets.

* Introduced the problem (rewrite the problem in your own words)

My words: Water-rich minerals observed on Psyche are indicative of different formation mechanisms, making Psyche’s origin unclear.

Your words: However, observations of Psyche have returned conflicting results on the question of its origin, as some studies have found the presence of water-rich minerals that are indicative of different formation mechanisms.

* Stated the goal (copy it here)

Therefore, we propose to obtain UV spectra of Psyche, including the first spectra down to 170 nm, using the Space Telescope Imaging Spectrograph (STIS) on the HST.

* What is the key component? (your words)  
  HST STIS UV spectra
* What is the target? (your words)

Psyche

* Explained the strategy. (copy here)

These spectra will be used to search for specific UV features, such as Fe-O transfer bands and spectral blueing, that could provide robust evidence for the emplacement of minerals such as pyroxenes and olivines on the surface.

* Stated the importance of the solution *to the subfield*  (copy here)

This analysis will allow us to determine the composition and history of Psyche, providing critical context for the upcoming NASA Discovery mission Psyche.

* Explained the broader implications of results to *other subfields*  (copy here)

Furthermore, as only a handful of asteroids have been observed in the UV, these observations will provide new insights into asteroid taxonomy, as well as improve our understanding of planet formation and mineral distribution in the early solar system.