

April 9, 2022

Department for Science and International Relations
Faculty of Mathematics and Physics, Charles University
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Dear Prof. Málek,

I write to provide an assessment of the habilitation thesis on “Tides in Terrestrial Planets and Icy Moons” submitted for consideration by dr. Marie Běhounková. To put my conclusion up front, this is an extremely impressive body of work and certainly indicates a scientist of great promise. The record of publication reflects the creativity and skills to pursue an independent scientific career, mentor students, and make important contributions to planetary science. It is my assessment that dr. Běhounková should be granted the habilitation based on the work presented in this thesis, but even more so given her other scholarly efforts that extend well beyond the topic presented here.

The thesis provides a useful introduction to the topic of thermal, rotational and orbital evolution of planetary satellites and satellite systems. This is a wide range of physical phenomena to cover and the introduction is appropriately detailed, without being cumbersome. This is followed by insightful discussion of the coupling of these processes, with particular consideration given to the problem of separating timescales. This separation is critical if the numerical analysis approaches proposed are to succeed.

The applications to Europa, Enceladus, and tidally dominated eco-planets are timely and well executed. Extension of the work to bodies such as Ganymede in the near future in support of JUICE mission data is easily foreseen. The tools developed in this thesis are applicable to many inter-

esting problems in planetary science including Pluto/Charon, Earth/Moon, and possibly even the spin-orbit resonance between Earth and Venus (with the addition of atmospheric interactions).

The included publications are all impactful works, demonstrating a wide range of applications to important problems in planetary science. The inclusion of student-led works demonstrates dr. Běhounková's capabilities as a mentor for the next generation of scientists.

Overall the quality of the work and presentation is very high. I have gone through the originality check of the thesis as performed by the system Turnitin. It is clear to me that the thesis represents an original work based on an excellent collection of 11 papers in high-impact international journals. I could not identify any scientific misconduct regarding copying.

In conclusion, dr. Marie Běhounková is deserving of being granted the honor of habilitation by Charles University. I thank you for the opportunity to contribute by providing this assessment.

Sincerely yours,

A solid black rectangular box redacting the signature of the author.

William B. Moore
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