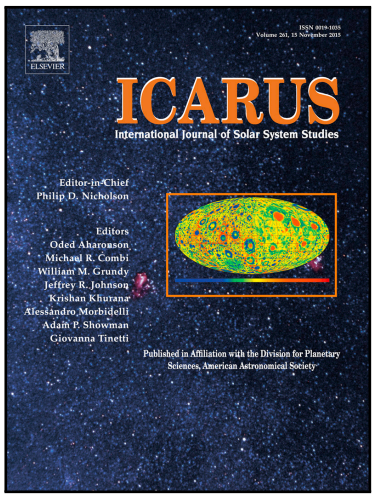

On the origin of internal layers in comet nuclei.

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PII: S0019-1035(18)30054-X
DOI: 10.1016/j.icarus.2018.05.031
Reference: YICAR 12919

To appear in: *Icarus*

Received date: 29 January 2018
Revised date: 11 May 2018
Accepted date: 29 May 2018

Please cite this article as: Michael J.S. Belton , Xiao-Duan Zou , Jian-Yang Li , Erik Asphaug , On the origin of internal layers in comet nuclei., *Icarus* (2018), doi: 10.1016/j.icarus.2018.05.031

Highlights:

- We show that the regularity, dimensions, global coordination, and structural content of the layering discovered in the interiors of comet 67P/Churyumov-Gerasimenko and 9P/Tempel 1 can be formed as the result of a late-Centaur stage evolutionary process (roughly a million years ago), when amorphous to hexagonal water ice, self-sustaining, phase-change fronts sweep rapidly through the entire nucleus transforming the interior in a few thousand years.