Internal structure of icy moons: ice-ocean systems as commonly seen in the outer solar system

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Among the icy satellites in the outer solar system, several objects have been identified that may contain substantial amounts of liquid water in their interiors. In particular the large satellites, e.g., Europa, Ganymede, Callisto, and Titan may contain subsurface oceans until the present day. However, the example of Enceladus shows that also smaller satellites can have sufficient internal heat sources to maintain liquid water layers. Also Pluto and Triton are potential ocean candidates. The available heat sources differ considerably among the icy moons depending on their initial composition, and thus the amount of radiogenic heating, the tidal interaction with the primary planet, their rheological states and -in some cases- their interaction with other satellites due to orbital resonances. In this talk the current knowledge on the ice-ocean systems in the outer solar system will be summarized. Prospects for their investigation with future planetary missions will be discussed.

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