

# **An explanation of the Mimas-Enceladus paradox**

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A parameterized theory of convection is developed for six Saturnian medium size icy satellites (MIS). The theory indicates that Enceladus could be in a specific 'excited', high temperature state while Mimas could be only in a 'basic' low temperature state. We suggest that it explains why Enceladus is an active body while Mimas is a dead body (i.e. Mimas-Enceladus paradox). The theory could be also used for estimation of tidal heating and some material parameters of the MIS interiors. The ratio of tidal heating to total heating is probably in the range  $0.86 \div 0.94$ . The recent data from Cassini mission conformed our estimations.

**Keywords:** satellites of Saturn, tides, thermal histories, tectonics, volcanism.