

## **Colliding worlds: A journey in time and space through the solar system (Farinella Prize Lecture)**

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### **Abstract**

The evolution of the interiors, surfaces, and atmospheres of solid bodies in the solar system is affected by interplanetary collisions. From Mercury to the outskirts of the solar system, collisions with leftover planetesimals -asteroids, comets and their debris- provide a primary evolutionary process. Impact craters mark this evolution and provide a diagnostic tool, which coupled with modeling and, when possible, sample analysis, allow us to unravel the ancient history of the solar system.

In this prize talk, I will present a few selected cutting-edge research topics at the frontier between modeling and space exploration that without any doubt would have deeply interested the curious mind of Paolo Farinella.