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Sommario/riassunto	This thesis presents fundamental work that explains two mysteries concerning the trajectory of interplanetary spacecraft. For the first problem, the so-called Pioneer anomaly, a wholly new and innovative method was developed for computing all contributions to the acceleration due to onboard thermal sources. Through a careful analysis of all parts of the spacecraft Pioneer 10 and 11, the application of this methodology has yielded the observed anomalous acceleration. This marks a major achievement, given that this problem remained unsolved for more than a decade. For the second anomaly, the flyby

anomaly, a tiny glitch in the velocity of spacecraft that perform gravity assisting maneuvers on Earth, no definitive answer is put forward; however a quite promising strategy for examining the problem is provided and a new mission is proposed. The proposal largely consists in using the Galileo Navigational Satellite System to track approaching spacecraft, and in considering a small test body that approaches Earth from a highly elliptic trajectory.

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