
The mathematical simulation testbed for the ERA manipulator control in the docking contact phase

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Docking, i.e. coupling of various objects by specialized mechanical interfaces ensuring low contact strain is one of the main operations performed by space manipulators. It needs a high precision guidance, which is provided by involving a human operator in a control loop. The operator forms commands for manipulator basing on information received from cameras. The system of mathematical MPTE (Mission Preparation and Training Equipment) modeling can simulate the ERA arm control and all the features of its motion together with the transposed payload, except the contact interaction of docking interfaces. The paper describes a mathematical facility created for testing the ERA manipulator control in the contact phase of docking operations as well as for operators' training.

Keywords: *mathematical simulation testbed, European Robotic Arm, contact phase of docking.*

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