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Sommario/riassunto	Effective heat transport systems in aerospace are based on multiphase loop heat pipes (LHPs). For a precise thermal control of the electronics, electrical heaters are additionally used to control the operating temperature of the LHP. This work focusses on the dynamical modeling and model-based control design for LHP-based heat transport systems. The results of this work can be used for the optimization of current control parameters and the efficient control design for future LHP applications.