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Michael Kohlhase* (michael.kohlhase@fau.de). *Virtual research environments for computational mathematics: The OpenDreamKit project and the Math-in-the-Middle Approach to System Interoperability.*

OpenDreamKit – “Open Digital Research Environment Toolkit for the Advancement of Mathematics” – is an H2020 EU Research Infrastructure project that aims at supporting, over the period 2015–2019, the ecosystem of open-source mathematical software systems. OpenDreamKit will deliver a flexible toolkit enabling research groups to set up Virtual Research Environments, customised to meet the varied needs of research projects in pure mathematics and applications.

An important step in the OpenDreamKit endeavor is to foster the interoperability between a variety of systems, ranging from computer algebra systems over mathematical databases to front-ends. This is the mission of the integration work package. We report on the Math-in-the-Middle approach to system (computer algebra systems) interoperability. This architecture consists of a central mathematical ontology that documents the domain and fixes a joint vocabulary, or even a language, going beyond existing systems such as OpenMath, combined with specifications of the functionalities of the various systems. Interaction between systems can then be enriched by pivoting around this architecture. (Received September 22, 2017)