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Lightflow - a lightweight, distributed workflow system

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The Australian Synchrotron, is one of Australia's most important pieces of research infrastructure. After more than 10 years of operation,
the beamlines at the Australian Synchrotron are well established and the demand for automation of research tasks is growing. Such tasks routinely involve the reduction of TBscale data, online (realtime) analysis of the recorded data to guide experiments, and fully automated data management workflows.

In order to meet these demands, a generic, distributed workflow system was developed. It is based on well established Python libraries and tools. The individual tasks of a workflow are arranged in a directed acyclic graph and one or more directed acyclic graphs form a workflow. Workers consume the tasks, allowing the processing of a workflow to scale horizontally. Data can flow between tasks and a variety of specialised tasks is available.

Lightflow has been released as open source on the Australian Synchrotron GitHub page

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