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Title: The International Virtual Observatory Alliance: recent technical developments and the road ahead

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Abstract

The International Virtual Observatory Alliance (IVOA: <http://www.ivoa.net>) represents 14 international projects working in coordination to realize the essential technologies and interoperability standards necessary to create a new research infrastructure for 21st century astronomy. This international Virtual Observatory will allow astronomers to interrogate multiple data centres in a seamless and transparent way, will provide new powerful analysis and visualisation tools within that system, and will give data centres a standard framework for publishing and delivering services using their data. The first step for the IVOA projects is to develop the standardised framework that will allow such creative diversity. Since its inception in June 2002, the IVOA has already fostered the creation of a new international and widely accepted, astronomical data format (VOTable) and has set up technical working groups devoted to defining essential standards for service registries, content description, data access, data models and query languages following developments in the grid community. These new standards and technologies are being used to build science prototypes, demonstrations, and applications, many of which have been shown in international meetings in the past two years. This paper reviews the current status of IVOA projects, the priority areas for technical development, the science prototypes and planned developments.

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