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Astro-COLIBRI: a new platform for time-domain astronomy

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Astro-COLIBRI: The coincidence library for real-time inquiry for multi-messenger astrophysics

Flares of known astronomical sources and new transient phenomena occur on different timescales, from subseconds to several days or weeks. The discovery potential of both serendipitous observations and multi-messenger and multi-wavelength follow-up observations could be maximized with a tool which allows for quickly acquiring an overview over both persistent sources as well as transient events in the relevant phase space. We here present COincidence LIBrary for Real-time Inquiry (Astro-COLIBRI), a novel and comprehensive tool for this task.

Astro-COLIBRI's architecture comprises a RESTful API, a real-time database, a cloud-based alert system and a website as well as apps for iOS and Android as clients for users. The structure of Astro-COLIBRI is optimized for performance and reliability and exploits concepts such as multi-index database queries, a global content delivery network (CDN), and direct data streams from the database to the clients to allow for a seemless user experience. Astro-COLIBRI evaluates incoming VOEvent messages of astronomical observations in real time, filters them by user specified criteria and puts them into their MWL and MM context. The clients provide a graphical representation with an easy to grasp summary of the relevant data to allow for the fast identification of interesting phenomena and provides an assessement of observing conditions at a large selection of observatories around the world.

The platform is currently in its beta phase. We'll present the current features and outline future improvements.

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Classification de Session: Hands-On