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Automatic detection of hostless transients in the FINK broker

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Almost all astronomical transients are hosted by a galaxy. Hostless transients are rare and have been associated with events that probe the extremes of physical mechanisms. Early identification based on their hostless characteristics would allow rapid follow up and consequently better datasets for modelling and interpretation. Most apparently hostless events are not in fact hostless but their hosts are fainter than the limiting magnitude of the discovery survey. Thus, the detection of hostless events could also be used as an indirect mechanism to discover low surface brightness galaxies. Only a few true hostless events have been found to date resulting in an illustrative application for automatic anomaly detection techniques. We developed a pipeline that implements fairly simple anomaly detection methods built upon the experience of domain knowledge experts. We aim at detecting possible hostless transients using large surveys' alerts. We plan on implementing this pipeline into the FINK broker to be able to provide hostless candidates in real time. In this talk I will describe the science case and highlight features which should be kept in mind when dealing with real astronomical alerts. I will also show examples of a few hostless candidates and discuss how they can be used as templates to search for similar sources.

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