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An analysis of the FrequencyHough method for an all-sky search for continuous gravitational waves ANDREW MILLER, The College of New Jersey, PIA ASTONE, Sapienza University of Rome, LIGO SCIENTIFIC COLLABORATION, VIRGO COLLABORATION — In this talk we present the Rome-Virgo hierarchical data analysis pipeline for all-sky searches of continuous gravitational wave signals, like those emitted by spinning neutron stars asymmetric with respect to the rotation axis, with unknown position, rotational frequency and spin-down. The core of the pipeline is an incoherent step based on a particularly efficient implementation of the Hough transform, that we call FrequencyHough, that maps the data time/frequency plane to the source frequency/spin-down plane for each fixed direction in the sky. We developed a narrow-band version of the pipeline centered at some reduced parameter space regions, which could be applied to mock data challenge analyses using LIGO or Virgo data. Examples will be shown.

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