Contribution ID: **519** Type: **Invited talk in the parallel session**

Would we know a wormhole if we saw one?

Tuesday, 6 July 2021 10:15 (15 minutes)

I will discuss the observational appearance of wormholes if they were observed by a very long baseline interferometry (VLBI) array such as the Event Horizon Telescope, or some more powerful future VLBI array. Certain properties, like change of the diameter of the critical curve with respect to the Kerr black hole of the same mass are difficult to interpret given typically poor constraints we have on observed object mass and distance, others, like minor deviation of the critical curve shape, would be likely hidden away by uncertainties such as the unknown spin axis inclination with respect to a distant observer. However, not all hope is lost. Topological differences, such as presence of multiple critical curves corresponding to several photon shells (at two sides of the wormhole, or possibly also at the wormhole throat) could be detected without too many doubts. I will describe how capabilities of future VLBI instruments could possibly allow us to detect a wormhole, if we saw one.

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Session Classification: Wormholes, Energy Conditions and Time Machines

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