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Non-Euclidean cloaking effect for waves HUANYANG CHEN, School of Physical Science and Technology, Soochow University, Suzhou, Jiangsu 215006, China, TOMAS TYC, Institute of Theoretical Physics and Astrophysics, Masaryk University, Kotlarska 2, 61137 Brno, Czech Republic, C.T. CHAN, Department of Physics, The Hong Kong University of Science and Technology, Clear Water Bay, Hong Kong, China, ULF LEONHARDT, School of Physics and Astronomy, University of St Andrews, North Haugh, St Andrews KY16 9SS, UK — Non-Euclidean cloaking was recently proposed by combining non-Euclidean geometry and transformation optics. As the coordinate transformation is non-singular, cloaking may be broadband. Such a cloak has initially been designed for the regime of geometrical optics. Here we demonstrate that the cloaking device can even function in extreme wave optics when the working frequencies are quantized related to the spherical harmonics. Numerical simulations were performed to illustrate the cloaking effect.

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