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Minimality of the data in wavelet filters. (English. English summary)

With an appendix by Brian Treadway.

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In previous work by Jorgensen and his coauthors [see, e.g., O. Bratteli and P. E. T. Jorgensen, *Integral Equations Operator Theory* 28 (1997), no. 4, 382–443; MR 99k:46094b] a connection between multiresolution analysis of scale N and certain representations of the Cuntz algebra \mathcal{O}_N has been worked out. The point of the present paper is that irreducibility of such a representation corresponds to optimality of the corresponding wavelet filter. The main result is that generically the relevant representations of \mathcal{O}_N are irreducible. It is also shown that generically two different wavelet filters yield unitarily inequivalent representations of \mathcal{O}_N .

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