

**ON THE STRUCTURE OF THE DIFFUSION DISTANCE INDUCED  
BY THE FRACTIONAL DYADIC LAPLACIAN**

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*ABSTRACT.* In this note we explore the structure of the diffusion metric of Coifman-Lafon determined by fractional dyadic Laplacians. The main result is that, for each  $t > 0$ , the diffusion metric is a function of the dyadic distance, given in  $\mathbb{R}^+$  by  $\delta(x, y) = \inf \{|I| : I \text{ is a dyadic interval containing } x \text{ and } y\}$ . Even if these functions of  $\delta$  are not equivalent to  $\delta$ , the families of balls are the same, to wit, the dyadic intervals.