

**A TRAVELING SALESMAN THEOREM FOR  
1-AHLFORS-REGULAR SETS IN  
A METRIC SPACE**

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I. Hahlonma showed that uniform control of local averages of Menger curvature of a 1-Ahlfors-regular set  $K$ , allow one to obtain a 1-Ahlfors-regular curve containing  $K$ . We show the converse to this theorem, i.e. that for a 1-Ahlfors-regular curve we have uniform control of local averages of Menger curvature. All of this is done in the setting of an abstract metric space. Thus giving a characterization of 1-Ahlfors-regular subset of 1-Ahlfors-regular curves in a metric space.