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## Approximating TSP with Neighborhoods in Doubling Metrics

By

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### **Abstract:**

We consider the Traveling Salesman Problem with Neighborhoods (TSPN) in doubling metrics. The goal is to find a shortest tour that visits each of a collection of  $n$  subsets (regions or neighborhoods) in the underlying metric space. We give a QPTAS when the regions are what we call  $\alpha$ -fat weakly disjoint. This notion combines the existing notions of diameter variation, fatness and disjointness for geometric objects and generalizes these notions to any arbitrary metric space. Intuitively, the regions can be grouped into a bounded number of types, where in each type, the regions have diameters within  $\alpha$  factor of one another, and each such region can designate a point such that these points are far away from one another.

### **Biography:**

Dr Hubert Chan is currently an Assistant Professor at the Department of Computer Science at the University of Hong Kong. He completed his PhD in Computer Science at Carnegie Mellon University in 2007. His main research interests are approximation algorithms and metric embeddings. In his PhD thesis, he investigates notions of metric dimension and the design of algorithms whose performance adapts to the dimension of the given metric. Before taking up the faculty position at HKU, he spent two years as a post-doc at Max-Planck-Institut fuer Informatik in Germany.