

**CONSTANT APPROXIMATION ALGORITHMS FOR
EMBEDDING GRAPH METRICS INTO TREES AND
OUTERPLANAR GRAPHS**

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In this talk, we present a simple factor 6 algorithm for approximating the optimal multiplicative distortion of embedding a graph metric into a tree metric. We also present a constant factor algorithm for approximating the optimal distortion of embedding a graph metric into an outerplanar metric. For this, we introduce a general notion of metric relaxed minor and show that if G contains an α -metric relaxed H -minor, then the distortion of any embedding of G into any metric induced by a H -minor free graph is $\geq \alpha$. Then, for $H = K_{2,3}$, we present an algorithm which either finds an α -relaxed minor, or produces an $O(\alpha)$ -embedding into an outerplanar metric.