Let $B(x,r)$ denote a ball, (either open or closed) of radius $r > 0$ and center x, in the Euclidean space $\mathbb{R}^n$. Let $\mu[A]$ be the n- dimensional Lebesgue volume of the subset A of $\mathbb{R}^n$ and let ϵ denote a real number in $(0,1]$. A pair of balls B, B' are said to be ϵ-disjoint if $\mu(B \cap B') \leq (1-\epsilon) \min\{\mu(B), \mu(B')\}$. A family F of balls is ϵ-disjoint, if the balls are pairwise ϵ-disjoint. Denote by $\Gamma_{n,\epsilon}$ the set of all intersection graphs $\Gamma(F)$ for ϵ-disjoint families F of balls in $\mathbb{R}^n$. The authors show that there exists a least integer $d = d(n,\epsilon)$ such that every graph in $\Gamma_{n,\epsilon}$ has a vertex of degree at most d and also show that there exists a least integer $m = m(n)$ such that every intersection graph $\Gamma(F)$, where F is a family of balls, has a vertex v such that the subgraph induced by the vertices adjacent to v contains no independent set of size greater than m.

<div align="right">*R.C.Entringer*</div>

Classification:
05C99 Graph theory

Keywords:
epsilon-disjoint; ball; Euclidean space; intersection graph