Hamilton cylcles in random intersection graphs.

Katarzyna Rybarczyk
Faculty of Mathematics and Computer Science,
Adam Mickiewicz University, 60–769 Poznań, Poland
kryba@amu.edu.pl

In the random intersection graph model $G(n, m, P_{(m)})$ to each vertex from a vertex set V ($|V| = n$) we assign, independently from all other vertices, a random set of its features $W(v)$ from an auxiliary set W ($|W| = m$). The cardinality of $W(v)$ is chosen according to a given probability distribution $P_{(m)}$ and $W(v)$ is chosen uniformly at random from all subsets of W of this cardinality. We connect vertices v and u by an edge if the sets $W(v)$ and $W(u)$ intersect. The model is very flexible and fits into many real-life applications such as wireless networks modelling or complex networks analysis.

We will present some latest results concerning hamiltonicity of $G(n, m, P_{(m)})$, when $P_{(m)}$ is the binomial distribution or $P_{(m)}$ is equal to integer $d(n)$ with probability 1. We will also discuss the relation between obtained results and hamitonicity of the line graph of a random hypergraph.