1163-05-790 **Bogumil Kaminski**, Warsaw, Poland, **Pawel Pralat*** (pralat@ryerson.ca), Toronto, ON , Canada, and **Francois Theberge**, Ottawa, ON , Canada. *Community Detection Algorithm Using Hypergraph Modularity.*

Modularity is designed to measure the strength of division of a network represented as a graph into clusters. Graphs with high modularity have dense connections between the vertices within clusters but sparse connections between vertices of different clusters. As a result, modularity is often used in optimization methods for detecting community structure in networks. However, many networks that are currently modelled as graphs would be more accurately modelled as hypergraphs. Unfortunately, the theory and tools are still not sufficiently developed to allow most problems, including clustering, to be tackled directly within this context. We propose one of the very first community detection algorithms for hypergraphs after generalizing the graph modularity function to hypergraphs. The main feature of our algorithm is that it can be adjusted to various scenarios depending on how often vertices in one community share hyperedges with vertices from other community. (Received September 12, 2020)