1163-55-1273 **Barbara Giunti*** (barbara.giunti@unimore.it), Reggio Emilia, Italy, **Claudia Landi** (clandi@unimore.it), Reggio Emilia, Italy, **Wojciech Chachólski** (wojtek@kth.se), Stockholm, Sweden, and **Alvin Jin** (alvinj@kth.se), Stockholm, Sweden. *Persistence algorithms from filtered chain complexes point of view.*

Persistence homology has proved to be a useful tool to extract information from real-world data sets. However, homology may be an overkill, forgetting too much information, and several papers have recently focused on lifting persistence from homology to homotopy. This motivates interest in studying tame parametrized chain complexes and a special subclass of them: the filtered chain complexes and their decomposition. We present an algorithm to decompose filtered chain complexes into indecomposables by splitting off interval spheres. We show that these splittings yield a unified explanation of the clearing and compress optimization techniques used in persistence algorithms. We also derive some other innovations for persistence computation such as processing the boundary matrix in almost random order. (Received September 15, 2020)