Planar point processes with composition-valued marks and extensions to more challenging mark objects

The analysis of marked spatial point processes has become a highly important field of research in a myriad of different disciplines. However, despite the growing availability and accessibility of more complex data scenarios, the methodological literature remains mainly restricted to the analysis spatial point processes with scalar-valued marks. Extending prominent summary characteristics for real-valued marks to the case where each point is augmented by a constrained vector-valued quantity both componentwise and compositional mark summary characteristics are introduced and embedded into the generic framework of spatial point processes with object-valued marks.