

Targets that generate multiple measurements at a given instant in time are commonly known as extended targets. These present a challenge for many tracking algorithms, as they violate one of the key assumptions of the standard measurement model. In this paper, a new algorithm is proposed for tracking multiple extended targets in clutter, which is capable of estimating the number of targets, as well the trajectories of their states, comprising the kinematics, measurement rates, and extents. The proposed technique is based on modeling the multi-target state as a generalized labeled multi-Bernoulli (GLMB) random finite set (RFS), within which the extended targets are modeled using gamma Gaussian inverse Wishart (GGIW) distributions. A cheaper variant of the algorithm is also proposed, based on the labelled multi-Bernoulli (LMB) filter. The proposed GLMB/LMB-based algorithms are compared with an extended target version of the cardinalized probability hypothesis density (CPHD) filter, and simulation results show that the (G)LMB has improved estimation and tracking performance.