1139-41-358   **Tatyana Sorokina*** (`tsorokina@towson.edu`), Towson University, 8000 York Rd, Towson, MD 21093, and **Min Ji** and **Liang Dong**. *Piecewise polynomial copulas.*

Copulas are a very powerful tool in modeling joint behavior of different sorts of risks. The word copula derives from the Latin noun *cupula*, which means "small cup". It captures the dependence structure among random variables, irrespective of their marginal distributions. This property makes copulas popular in recent years in the area of risk modeling for insurance and finance. There exists a copula for any joint distribution. We show that Bernstein-Bézier analysis is a useful tool for constructing piecewise polynomial copulas. First we apply Bernstein-Bézier techniques to reconstruct the linear B-spline copulas. Using the same techniques, we further construct a new class of differentiable biquadratic quasi-interpolating copulas that have continuous second order mixed derivatives. We test the performance of the empirical biquadratic quasi-interpolating copulas, and show that they perform better than the empirical linear B-spline copulas in nonparametric estimation of the copulas. (Received February 16, 2018)