New Contributions of the Paper

- New algorithm based on a sequence of three modified Newton procedures to construct high-order cubature rules over tetrahedra

- Use of monomial basis functions with a preconditioner for the Newton equations to realize a well-conditioned Jacobian matrix

- Cubature rules for orders $p = 16$ to $p = 20$ are presented for the first time

- For polynomial orders $p = 2$ to $p = 15$, cubature rules with the same or fewer number of integration points than existing rules are obtained