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AN ISOGEOMETRIC REISSNER-MINDLIN SHELL WITH LAGRANGE BASIS

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In this paper, we propose a new type of isogeometric Reissner-Mindlin degenerated shell for linear analysis. Degenerated shell is a frequently used shell type deduced by degeneration from 3D solid element, and has a very easy implementation procedure. When extended to isogeometric shell analysis, it suffers from the fiber vector determination problem. In this paper, we propose a method based on the use of lagrange basis. Due to the interpolative property of the lagrange basis, the fiber vectors can be naturally defined. This method keeps the geometric exact character of the isogeometric analysis and avoids the difficulties in the definition of the fiber vectors. At the same time, the rotation boundary conditions can be easily imposed. There will be different numbers of degrees of freedom for the displacements and the rotations in a single element. Examples show that the method proposed is simple and effective.