February 27, 2023

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Sliding bendings of surfaces and Euler's conjecture.

Surface bending is called *sliding* if the points of the surface change their position in space while remaining on the surface itself. Such bendings were considered even by Bianchi, they are also mentioned by V.F.Kagan. The classics proved that locally the metric of such surfaces is a metric of rotation. The question of their global structure was raised, for example, by M.Spivak. The author proved (1995) that such surfaces are globally homeomorphic to a sphere or a torus. We consider the question of their deformation in the class of sliding bendings and prove that any compact surface with a rotation metric admits, moreover, a unique field of infinitesimal bendings of the 1st order and derive the exact explicit form of such bendings. But the problem is to find out whether these infinitesimal bendings are trivial or not. We propose an algorithm for checking this property. In the case of detection of the 1st order rigidity, we obtain the validity of the Euler hypothesis on the inflexibility of such compact surfaces in the class of sliding bendings that are analytical in the parameter. The same statement is true if there are no infinitesimal bendings of the 2nd order.

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