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*Jacobians of circulant graphs.* Preliminary report.

The notion of the Jacobian group of a graph, which is also known as the Picard group, the critical group, and the dollar or sandpile group, was independently introduced by many authors R. Bacher, P. de la Harpe and T. Nagnibeda (1997), N. L. Biggs (1999), D. Lorenzini (2008), B. Baker and S. Norine (2009) and others. We define Jacobian of a graph as the maximal Abelian group generated by the flows obeying two Kirchhoff's laws. This notion arises as a discrete version of the Jacobian in the classical theory of Riemann surfaces. It also admits a natural interpretation in various areas of physics, coding theory, and financial mathematics. The Jacobian group is an important algebraic invariant of a finite graph. In particular, its order coincides with the number of spanning trees of the graph.

The purpose of this report is to determine the structure of the Jacobian for circulant graphs, the generalized Petersen graph,  $I$ -,  $Y$ -,  $H$ - graphs and their generalizations. We also present new formulas for the number of spanning trees and investigate arithmetical properties of these numbers. In many important cases, we describe the Jacobian group explicitly. In the general case, we propose an effective algorithm for its calculation. (Received September 14, 2017)