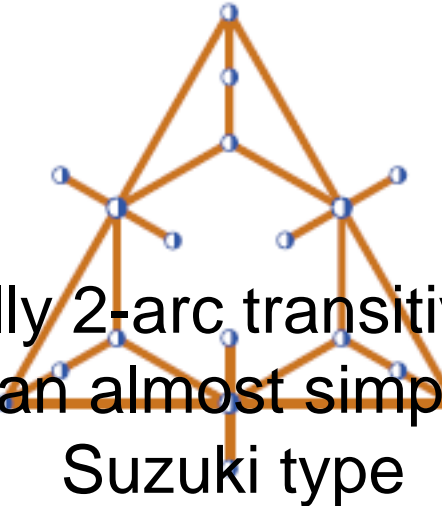


Bled'11 - 7th Slovenian International Conference on Graph Theory



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The locally 2-arc transitive graphs admitting an almost simple group of Suzuki type

Content :

A graph Γ is said to be locally $(G,2)$ -arc transitive for G a subgroup of $\text{Aut}(\Gamma)$ if, for any vertex α of Γ , G is transitive on the 2-arcs of Γ starting at α . In this talk, we will discuss recent progress toward the classification of the locally $(G,2)$ -arc transitive graphs, where $\text{Sz}(q) \leq G \leq \text{Aut}(\text{Sz}(q))$, $q = 2^{2k+1}$ for some $k \in \mathbb{N}$. In particular, we will discuss seven families of vertex-intransitive locally $(G,2)$ -arc transitive graphs. Furthermore, for any graph Γ in one of these families, $\text{Sz}(q) \leq \text{Aut}(\Gamma) \leq \text{Aut}(\text{Sz}(q))$, and the only locally 2-arc transitive graphs admitting an almost simple group of Suzuki type whose vertices all have valency at least three are (i) graphs in these seven families, (ii) (vertex transitive) 2-arc transitive graphs admitting an almost simple group of Suzuki type, or (iii) double covers of the graphs in (ii). Since the graphs in (ii) have been classified by Fang and Praeger ("Finite two-arc transitive graphs admitting a Suzuki simple group," *Comm. Alg.*, 27(8):3727-3754, 1999), this completes the classification of locally 2-arc transitive graphs admitting a Suzuki simple group.

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