1046-34-1258 **Dmitry Altshuller*** (altshuller@ieee.org), Crane Aerospace & Electronics, 3000 Winona Ave, Burbank, CA 91510. *On the Aizerman Problem for Second-Order Systems with Multiple Delays.*

The paper considers the problem described by Rasvan in the book "Unsolved Problems in Mathematical Systems and Control Theory" by Blondel and Megretski. Specifically, we consider the second-order differential equation with multiple delays:

$$\ddot{x} + a_1\dot{x} + \varphi(x) + \sum_{j=1}^{m} b_j x(t-\tau_j) = 0 \tag{1}$$

where the function $\varphi(x)$ satisfies the sector inequality $0 < \varphi(x) < \mu x$.

It will proved that the Aizerman conjecture is true for this type of systems, i.e the stability of this system can be deternied by considering instead the linear system:

$$\ddot{x} + a_1\dot{x} + ax + \sum_{j=1}^{m} b_j x(t-\tau_j) = 0 \tag{2}$$

The proof is based on the Popov criterion for absolute stability.

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