1117-37-346   **Nandor J Simanyi*** (`simanyi@uab.edu`), 1300 University Blvd. Suite 490B, Birmingham, AL
35294. *Toward Wojtkowski's Falling Ball Conjecture.* Preliminary report.

In 1990 Maciej P. Wojtkowski introduced the model of one-dimensional point masses $m_1 \geq m_2 \geq \cdots \geq m_n$ moving on the vertical half line, positioned at $0 \leq q_1 \leq q_2 \leq \cdots \leq q_n$ subjected to constant gravitation (they are falling down), and colliding with each other and the floor $q = 0$ elastically. (The monotone nonincreasing property of the masses is necessary to avoid the existence of linearly stable periodic orbits, thus hindering hyperbolicity and ergodicity.)Since then this model received a considerable notoriety. Wojtkowski showed at that time that the system is completely hyperbolic, provided that $m_1 \neq m_n$. (In the case of equal masses the system is integrable.) He made the famous conjecture that in this case the system is actually ergodic.

In my talk I will present a road map leading to the proof of the above conjecture in the (slightly) restricted case $m_1 \neq m_2$. (Received January 17, 2016)