1046-46-492 **Mikhail I Ostrovskii*** (ostrovsm@stjohns.edu), Department of Mathematics, St. John's University, 8000 Utopia Parkway, Queens, NY 11439. *Auerbach bases and minimal-volume sufficient enlargements for normed spaces.* Preliminary report.

A symmetric, bounded, closed, convex set A in a finite dimensional normed space X is called a *sufficient enlargement* (SE) for X (or of the unit ball B_X) if, for an arbitrary isometric embedding of X into a Banach space Y, there exists a projection $P : Y \to X$ such that $P(B_Y) \subset A$. A sufficient enlargement A for X is called a *minimal-volume sufficient enlargement* (MVSE) if $\text{vol}A \leq \text{vol}D$ for each SE D for X. Possible shapes of MVSE were recently characterized by the author [J. Funct. Anal., **255** (2008), no. 3, 589–619] in terms of zonotopes generated by totally unimodular matrices. In the mentioned paper it was also proved that spaces X having a non-parallelepipedal MVSE are rather special: they should have a two-dimensional subspace whose unit ball is linearly equivalent to a regular hexagon. On the other hand, easy examples show that the presence of the regular hexagonal section of B_X does not imply that X has a non-parallelepipedal MVSE.

In this talk the author will present a characterization of finite-dimensional normed spaces having non-parallelepipedal MVSE in terms of Auerbach bases. (Received September 04, 2008)