1138-13-102   **Patricia Klein**, **Linquan Ma*** (`lquanma@math.utah.edu`), **Quy Hung Pham**, **Ilya Smirnov**
and **Yongwei Yao**. *Lech's inequality and Stuckrad-Vogel's conjecture.* Preliminary report.

Let (R, m) be a Noetherian local ring of dimension d and let M be a finitely generated R-module of dimension d. We prove that the set $l(M/IM)/e(I,M)$ (when I runs through all m-primary ideals) is bounded below by $1/d!e(R)$. Moreover, when the completion of M is equidimensional, this set is bounded above by a finite constant depending only on M. The lower bound extends a classical inequality of Lech, and the upper bound answers a question of Stuckrad-Vogel in the affirmative. (Received February 04, 2018)