1154-05-1534 **Kateřina Medková**, **Edita Pelantová** and **Élise Vandomme***, e.vandomme@alumni.uliege.be.
On non-repetitive complexity of Arnoux-Rauzy words.

Variability of an infinite word $\mathbf{u} = u_0u_1u_2\cdots$ over a finite alphabet can be judged from distinct points of view. For instance, Moothathu introduced in 2012 the non-repetitive complexity $nr\mathcal{C}_\mathbf{u}$ which reflects the structure of $\mathbf{u}$ with respect to the repetitions of factors of a given length. The value $nr\mathcal{C}_\mathbf{u}(n)$ is the maximal m such that for some $i \in \mathbb{N}$ any factor of $\mathbf{u}$ of length n occurs at most once in $u_iu_{i+1}u_{i+2}\cdots u_{i+m+n-2}$. He also considered a prefix variant of this function called the initial non-repetitive complexity function $inr\mathcal{C}_\mathbf{u}$. In 2016, Nicholson and Rampersad described some general properties of $inr\mathcal{C}_\mathbf{u}$ and evaluated $inr\mathcal{C}_\mathbf{u}$ for the Fibonacci and Tribonacci words. Recently, Bugeaud and Kim studied $inr\mathcal{C}_\mathbf{u}$ for Sturmian sequences. All these words belong to the class of Arnoux-Rauzy words, which are one of the generalizations of Sturmian words to multi-letter alphabets. In this talk, we determine $nr\mathcal{C}_\mathbf{u}$ for the Arnoux-Rauzy words and $inr\mathcal{C}_\mathbf{u}$ for the standard Arnoux-Rauzy words. Our main tools are S-adic representation of Arnoux-Rauzy words and description of return words to their factors. The formulas we obtain are then used to evaluate $nr\mathcal{C}_\mathbf{u}$ and $inr\mathcal{C}_\mathbf{u}$ for the d-bonacci word. (Received September 16, 2019)