Linear recursions generating permutation

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Let R be a finite commutative ring with identity.

Definition A sequence $\{s_n\}_{n\geq 0}$ of elements $s_n \in R$ is called **generating permutation (in short GP) sequence**, if there exist $|R|$ consecutive terms of the sequence which form a permutation of the elements of R. If, in addition, the sequence is periodic with a period exactly $|R|$, it is referred as a **strong GP sequence (SGP)**.
A sequence $\{s_n\}_{n\geq 0}$ of elements $s_n \in R$ is called **strictly balanced (in short SB) sequence**, if it is periodic and any element of R occurs equal number of times in one period of the sequence.

In this talk we will present some properties of the sequences defined above. In particular, we will give the necessary and sufficient conditions for a second-order linear recurrence sequence over $\mathbb{Z}_{p^m}$ to be GP.