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Sigrun Bodine* (sbodine@ups.edu), Dept. of Mathematics and Computer Science, University of Puget Sound, 1500 N Warner, Tacoma, WA 98416. *On asymptotic representation of solutions of perturbed systems of linear difference equations.* Preliminary report.

This talk is concerned with systems of linear difference equations $x(k+1) = A(k)x(k)$, for $k \geq k_0$, where $A(k)$ are invertible square matrices. Classical results, in analogy to the asymptotic integration of linear differential systems, consider the case $A(k) = \Lambda(k) + R(k)$ with $\Lambda(k)$ diagonal and invertible, and $R(k)$ small in some sense. It has been shown that a dichotomy condition on the moduli of the elements of $\Lambda(k)$ and a growth condition on the perturbation terms $R(k)$ sometimes allow the fundamental solution to be expressed in the form $X(k) = [I + o(1)] \prod_{l=k_0}^{k-1} B(l)$ as $k \rightarrow \infty$ with $B(l)$ diagonal and computable. We will use a nontraditional approach and dichotomy condition to derive new results. (Received October 03, 2000)