

## A CONSTRUCTIVE PROOF OF {PH}ASE TYPE CHARACTERIZATION THEOREM

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O’Cinneide’s characterization result about PH representation of Matrix Exponential (ME) distributions has been available for more than 20 years. Based on this theorem Commault and Mocanu recommended a monocyclic representation of PH distributions.

Utilizing the elements of these results we provide a constructive proof of the characterization theorem. Specifically, we present a procedure to generate a PH representation for any Matrix exponential function exhibiting the dominant eigenvalue and the positive density conditions and we prove that the applicability of the procedure. Our proof is rather elementary using on basic function properties (instead of complex mathematical constructions such as polytopes).