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**Physical basis for membrane-charge selectivity of cationic antimicrobial peptides** BAE-YEUN HA, SATTAR TAHERI-ARAGHI, University of Waterloo — Antimicrobial peptides are known to selectively disrupt (highly-charged) microbial membranes by asymmetrical incorporation into the outer layers. We present a physical basis for membrane-charge selectivity of cationic antimicrobial peptides. In particular, we provide a clear picture of how peptide charge,  $Q$ , influences the asymmetrical insertion – one salient feature is the existence of an optimal peptide charge, at which selective insertion is optimized. Our results suggest that large  $Q$  is required for antimicrobial selectivity, consistent with experiments.

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