

Conformational dynamics and aggregation behavior of piezoelectric diphenylalanine peptides in an external electric field

Supplementary Material

Catherine M. Kelly^{1,2,+}, Thomas Northey^{1,2,+}, Kate Ryan^{1,3},
Bernard R. Brooks⁴, Andrei Kholkin⁵, Brian J. Rodriguez^{1,3},
Nicolae-Viorel Buchete^{1,2,*}

¹*School of Physics, University College Dublin, Belfield, Dublin 4, Ireland*

²*Complex and Adaptive Systems Laboratory,*

University College Dublin, Belfield, Dublin 4, Ireland

³*Conway Institute of Biomolecular and Biomedical Research,*

University College Dublin, Belfield, Dublin 4, Ireland

⁴*Laboratory of Computational Biology, National Heart Lung and Blood Institute,
National Institutes of Health, Bethesda, Maryland 20892, United States*

⁵*Department of Materials and Ceramic Engineering & CICECO,
University of Aveiro, Portugal*

Date: August 27th, 2014

+ Equal contribution

* Email: buchete@ucd.ie

Supplementary Material

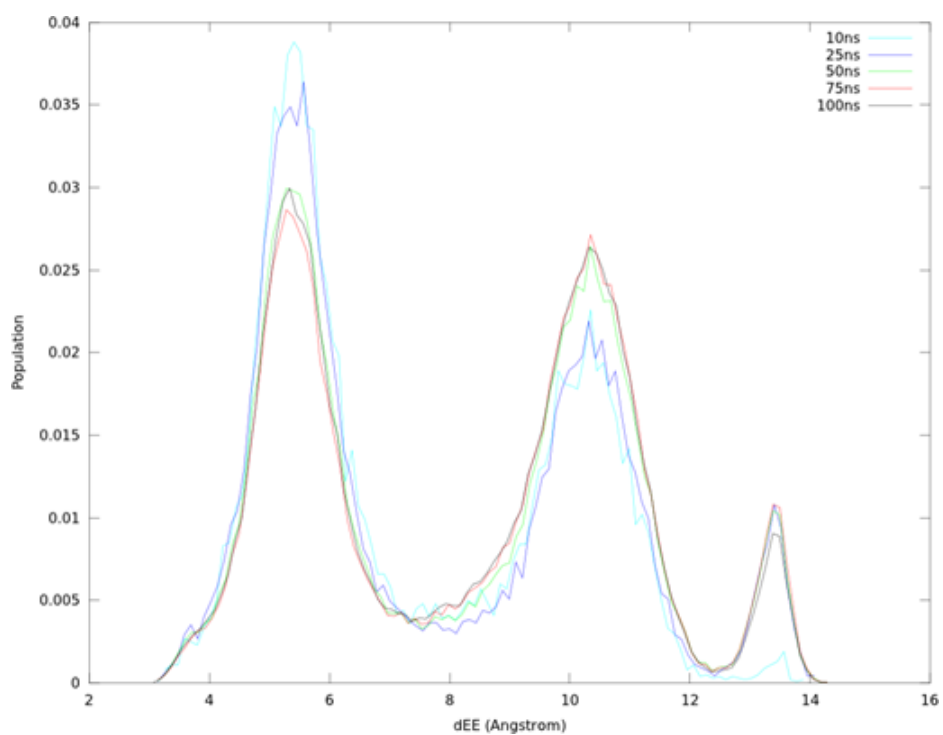


Figure S1. Population distribution of the end-to-end distance, d_{EE} , for the single-FF system with charged termini for different simulation times, 10, 25, 50, 75, 100 ns, showing peak convergence at >50 ns.

Supplementary Material

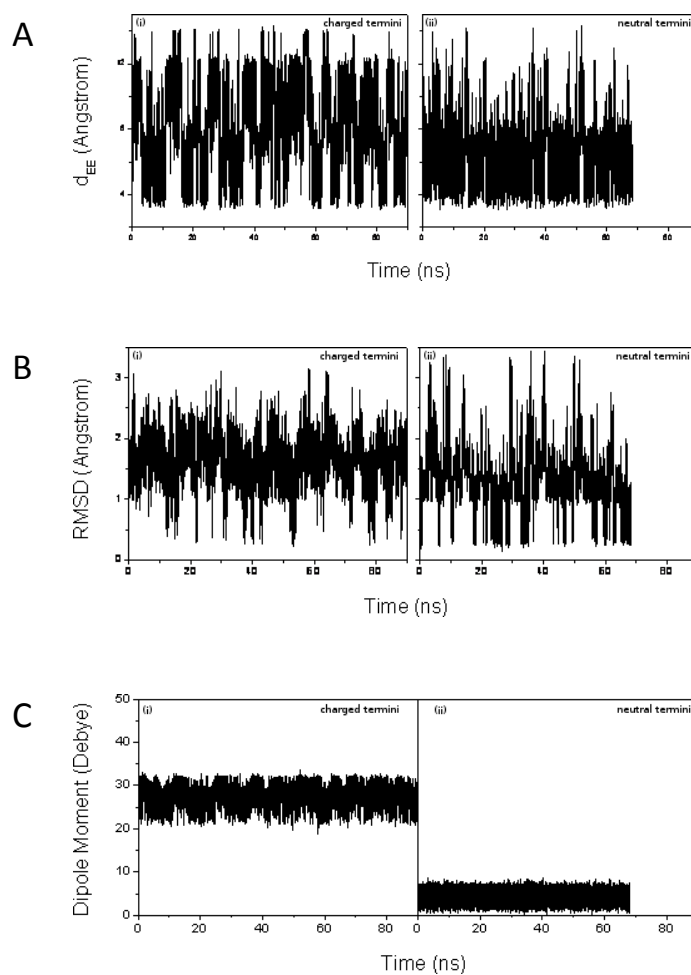


Figure S2. The end-to-end distance, d_{EE} , of the single-FF system with charged termini (A(i)) and neutral termini (A(ii)). RMSDs of non-hydrogen atoms of the single-FF system with respect to its average atomic position with charged termini (B(i)) and with neutral termini (B(ii)). Dipole magnitude over time for the single-FF system with charged (C(i)) and neutral termini (C(ii)).

Supplementary Material

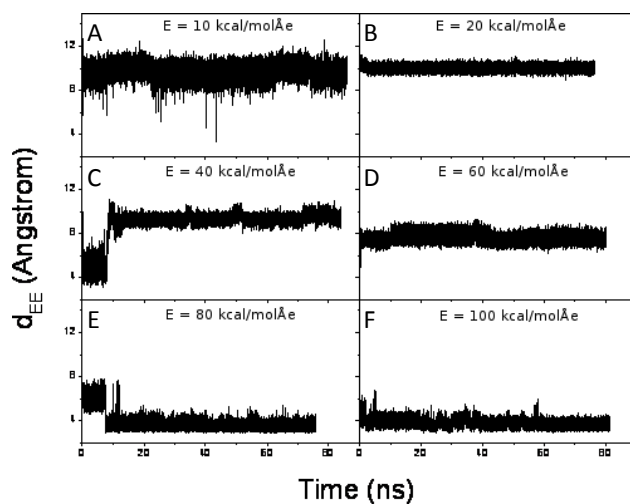


Figure S3. d_{ee} of the single-FF system with field magnitudes $E = 10, 20, 40, 60, 80, 100$ kcal/(mol Å e).

Supplementary Material

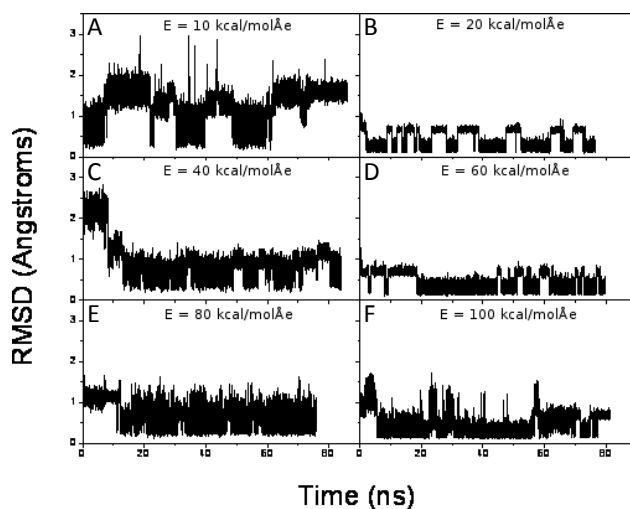


Figure S4. RMSDs with respect to the average position of the non-hydrogen atoms in each case for the charged-termini single-FF system with applied electric field magnitudes 10, 20, 40, 60, 80, 100 kcal/(mol Å e).

Supplementary Material

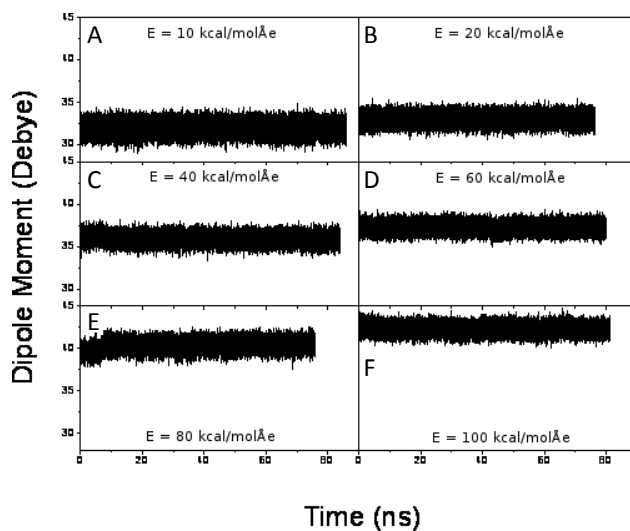


Figure S5. Dipole magnitude for the charged-termini single-FF system for each applied field magnitude $E = 10, 20, 40, 60, 80, 100 \text{ kcal}/(\text{mol } \text{\AA} e)$.