

計算材料力學實驗室



陳志鴻 助理教授

台灣大學應用力學研究所

學歷：德州大學奧斯汀分校物理博士

研究介紹：實驗室主要探討工程學及材料科學中界面移動穩定性的議題，包含仿生材料增韌機制、電極表面電化學穩定性，流固耦合於生物物理之應用。我們針對此類複雜系統，建構理論模型與數值計算方法，藉助圖形處理器(GPU)的平行運算處理，能有效率模擬與實驗尺度相仿的系統。歡迎對於下列領域有興趣的同學加入實驗室。

- Linux系統
- 程式撰寫(python,c,cuda)
- High performance computing
- 數值模型推導與分析

研究方向：

- 仿生複合材料增韌機制
- 鋰電池電極表面電化學穩定性

代表著作：

- A. Vasudevan, Y. Lubomirsky, C.-H. Chen, E. Bouchbinder, A. Karma. Oscillatory and tip-splitting instabilities in 2D dynamic fracture: The roles of intrinsic material length and time scales. Journal of the Mechanics and Physics of Solids, 2021
- C.-H. Chen* and C.-W. Pao. Phase-field study of dendritic morphology in lithium metal batteries. Journal of Power Sources, 2021.
- H.-C. Tsai, C.-H. Chen*, Y.-C. Shu, Crack behavior in nacre-like composites: a phase-field method, Proc. SPIE 11586, Bioinspiration, Biomimetics, and Bioreplication XI, 2021.
- C.-H. Chen*, A. M. Tabrizi, P.-A. Geslin, and A. Karma. Dendritic needle network modeling of the Columnar-to-Equiaxed transition. Part II: three dimensional formulation, implementation and comparison with experiments. Acta Materialia, 2021.
- P.-A. Geslin, C.-H. Chen, A. M. Tabrizi, and A. Karma. Dendritic needle network modeling of the Columnar-to-Equiaxed transition. Part I: two dimensional formulation and comparison with theory. Acta Materialia, 2021
- S-J Chang, C.-H. Chen*, and K-C Chen. Assessment of the mechanical suppression of nonuniform electrodeposition in lithium metal batteries. Physical Chemistry Chemical Physics, 2022.
- H-C Lin, K-C Chen, and C.-H. Chen. "Electrochemical Change Induced by Spherical Indentation in Lithium-Ion Batteries." Batteries, 2022
- P-C Hsu, Y-C Lin, W-H Wu, C-W Pao, and C.-H. Chen*. Atomistic Investigation of Solid Electrolyte Interphase: Nanostructure, Chemical Composition, and Mechanical Properties. Journal of The Electrochemical Society, 2022
- C-J Ko, C.-H. Chen*, and K-C Chen. Influence of Inhomogeneity of Lithium-Ion Transport within the Anode/Electrolyte Interface on Mossy Lithium Formation. Journal of Power Sources, 2023