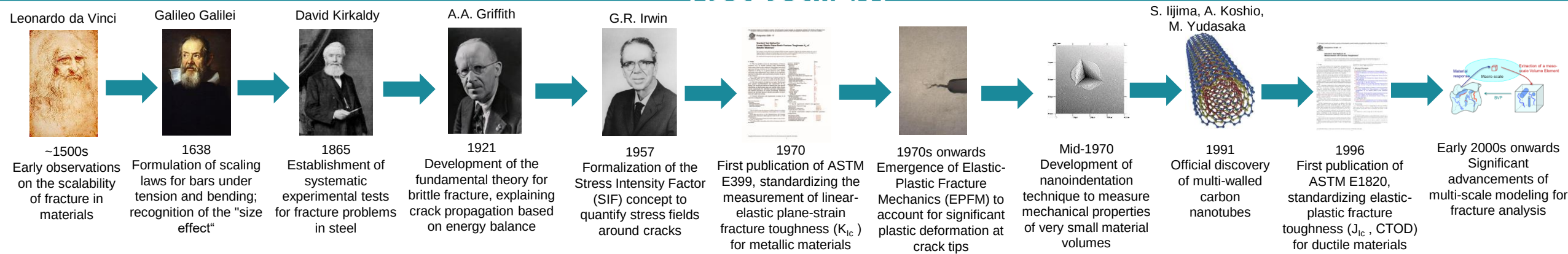
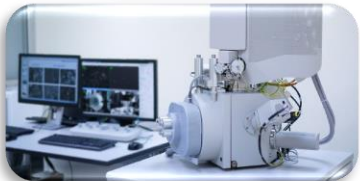


FROM METALS TO NANOMATERIALS: A COMPREHENSIVE APPROACH TO FRACTURE TOUGHNESS ASSESSMENT

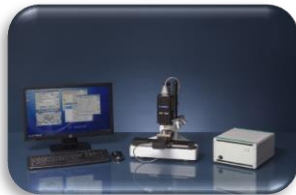
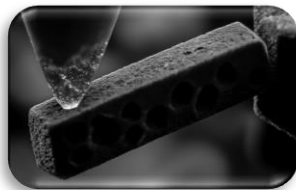


Metals



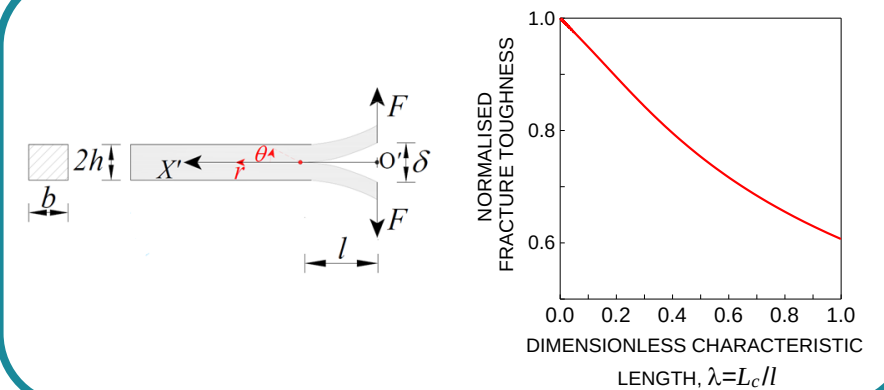
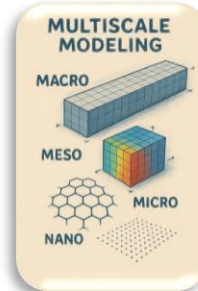
Microstructure, chemical composition

Nanomaterials



Nanoindentation, AFM, TEM

Multiscale modeling approaches



Future frontiers in fracture toughness assessment and material design:

- Role of Artificial Intelligence and Machine Learning in fracture behavior prediction
- Development of novel materials with enhanced toughness
- Impact on engineering education and diverse industrial applications