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국문 강연제목: 플라즈모닉 나노소재의 바이오의공학 응용

영문 강연제목: Biomedical Applications of Plasmonic Nanomaterials

Abstract(영문):

Plasmonic nanomaterials offer remarkable optical amplification effects, particularly through surface-enhanced Raman scattering (SERS), enabling highly sensitive and label-free molecular detection. This study explores both the fabrication of plasmonic materials and their integration into biosensing platforms. The first section highlights disease diagnosis approaches utilizing various human biofluids, such as urine and saliva, in combination with artificial intelligence (AI) algorithms. Clinical spectral datasets are analyzed to construct patient classification models, while potential biomarker candidates are identified through mathematical frameworks including multivariate curve resolution-alternating least squares (MCR-ALS), cosine similarity mapping, and Pearson correlation analysis. The latter section focuses on wearable sensing technologies that incorporate plasmonic structures for real-time biological monitoring. The convergence of plasmonic materials and AI-based analytics is anticipated to advance the field of personalized and precision diagnostics in the near future.

Brief Biosketch (간단한 이력, 연구/대외활동 소개,국문/영문)

2025.09 ~ : 고려대학교 바이오의공학부 부교수/Associate Professor, Korea University

2016~2025: 한국재료연구원 선임연구원/Senior Researcher, KIMS

2023~2025: University of Science and Technology (UST) 부교수/Associate Professor, UST

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