

## Non-Hermitian THz metasurfaces based ultra-sensitive sensing

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### Abstract

Since the sensitivity around EPs is significantly enhanced, Non-Hermitian photonics has become an emerging research area that has been extensively studied in different spectral regions using various optical systems. Here, we demonstrate sensing of amyloid-beta ( $A\beta$ ) protein, a well-known precursor for Alzheimer's disease by an abrupt phase transition near an exceptional point in non-Hermitian metasurfaces. The efficacy of the proposed sensing scheme is experimentally verified by detecting a minuscule amount of the monomer form of  $A\beta$  at the sub-picomole level.