Abstract Submitted
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**Plasmonic electromagnetically-induced transparency without symmetry breaking** XINGRI JIN, YUEHUI LU, HAIYU ZHENG, YOUNG-PAK LEE, Hanyang University, Korea, JOOYULL RHEE, Sungkyunkwan University, Korea, WONHO JANG, Korea Communication Commission Radio Research Laboratory, Korea — Electromagnetically-induced transparency (EIT) [1] results from the quantum interference between two pathways connecting the upper level with the lower levels, which leads to the probability for the atoms in the upper level to vanish. Its plasmonic analogue can be achieved by coupling of bright and dark plasmonic modes [2] based on the magnetic-plasmon resonance (MPR) [3]. To activate the dark plasmonic mode, a broken symmetry is generally resorted to, as reported in Ref. 2. Nevertheless, according to the picture of plasmonic EIT mediated by MPR, it is shown that the plasmonic analogue of EIT can be achieved even in the symmetric structures based on the second-order MPR [4]. This provides not only a supplement for the existing concept, but also a profound insight into the plasmonic coherent interference in the near-field zone.

[1] M. Fleischhauer, A. Imamoglu, and J. P. Marangos, Rev. Mod. Phys. **77**, 633 (2005). [2] S. Zhang, D. A. Genov, Y. Wang, M. Liu, and X. Zhang, prl **101**, 047401 (2008). [3] Y. Lu, H. Xu, N. T. Tung, J. Y. Rhee, W. H. Jang, B. S. Ham, and Y. P. Lee, `arXiv:0906.4029v4`. [4] X. Jin, Y. Lu, H. Zheng, Y. P. Lee, J. Y. Rhee, and W. H. Jang, `arXiv:0911.2062v1`.

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