

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Charge Density Wave Induction by Spin Density Wave in Iron-Based Superconductors¹ ALEXANDER BALATSKY, Los Alamos National Laboratory, DMITRI BASOV, UC San Diego, JIAN-XIN ZHU, Los Alamos National Laboratory — We argue that spin density wave (SDW) phase in ferrous superconductors contains charge density wave (CDW) with the modulation momentum that is a double of characteristic momenta of SDW [1]. We discuss symmetry constraints on allowed momenta of CDW generated by coupling to spin modulations. To be specific we considered the CDW that could be realized in Fe-11 (e.g., FeTe) and Fe-122 (e.g., BaFe₂As₂) compounds. In case of commensurate SDW, the CDW modulation vector is at the Bragg peaks positions and could be revealed by local scanned probes. In case of incommensurate SDW, the CDW is incommensurate and can be seen also by x-ray and elastic neutron scattering. We also discuss observable charge modulation due to CDW formation near defects and twin boundaries.

[1] A. V. Balatsky, D. N. Basov, and Jian-Xin Zhu, PHYSICAL REVIEW B **82**, 144522 (2010).

¹This work was supported by U.S. Department of Energy through LDRD and BES funds, the National Science Foundation under Grant No. PHY05-51164, and the UCOP- 09-027.

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Date submitted: 29 Dec 2010

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