

Abstract Submitted  
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**London penetration depth under pressure in Fe-based superconductors**<sup>1</sup> KYUIL CHO, MAKARIY A. TANATAR, CHARLES P. STREHLOW, RUSLAN PROZOROV, The Ames Laboratory and Iowa State University — Precisely measured low - temperature London penetration depth can be used as a sensitive tool to study the superconducting gap structure. Tunnel diode resonator (TDR) technique provides the ultimate sensitivity and resolution and it has been employed to study conventional and unconventional superconductors [1]. In case of Fe-based superconductors the dome - like evolution of the superconducting properties, including the gap anisotropy, has been found as a function of doping. While easier to work with, the doping also changes the scattering, especially important in Fe-based superconductors [1]. Pressure provides potentially cleaner alternative way for systematic study of the superconducting gap evolution. However, thus far no successful measurements on London penetration depth in the pressure cell were possible due to various background contributions. We have recently developed the pressure dependent London penetration depth measurement technique by combining a TDR technique with BeCu piston cell. Technical characteristics as well as the first results will be discussed.

[1] R. Prozorov and V. G. Kogan, Rep. Prog. Phys. 74, 124505 (2011).

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