Proximity fingerprint of $s_{\pm}$ superconductivity\textsuperscript{1} ALEXEI KOSHELEV, VALENTIN STANEV, Materials Science Division, Argonne National Laboratory — We suggest a straightforward and unambiguous test to identify possible opposite signs of superconducting order parameter in different bands proposed for iron-based superconductors ($s_{\pm}$-state). We consider proximity effect in a weakly coupled sandwich composed of a $s_{\pm}$-superconductor and thin layer of $s$-wave superconductor. In such system the $s$-wave order parameter is coupled differently with different $s_{\pm}$-gaps and it typically aligns with one of these gaps. This forces the other $s_{\pm}$-gap to be anti-aligned with the $s$-wave gap. In such situation the aligned band induces a peak in the $s$-wave density of states (DoS), while the anti-aligned band induces a dip. Observation of such contact-induced negative feature in the $s$-wave DoS would provide a definite proof for $s_{\pm}$-superconductivity.

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