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Experimental observation of high-temperature superconductivity in H_xS at $P \sim 150$ GPa

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We found that sulfur hydride transforms at $P \sim 90$ GPa to metal and superconductor with T_c increasing with pressure to 150 K at ≈ 200 GPa. Moreover we found superconductivity with $T_c \approx 190$ K in a H_2S sample pressurized to $P > 150$ GPa at $T > 220$ K. This superconductivity likely associates with the dissociation of H_2S , and formation of SH_n ($n > 2$) hydrides. We proved occurrence of superconductivity by the drop of the resistivity at least 50 times lower than the copper resistivity, the decrease of T_c with magnetic field, and the strong isotope shift of T_c in D_2S which evidences a major role of phonons in the superconductivity.