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Interaction current in $pp \to pp\gamma$ K. NAKAYAMA[1], Department of Physics and Astronomy, University of Georgia, Athens, GA 30602, H. HABERZETTL[2], Center for Nuclear Studies, Department of Physics, The George Washington University, Washington, DC 20052 — The nucleon-nucleon bremsstrahlung reaction is investigated based on a fully gauge-invariant relativistic meson-exchange model approach. In order to account consistently for the complicated part of the interaction current (which at present is too demanding to be calculated explicitly), a generalized contact current is introduced following the approach of Haberzettl, Nakayama, and Krewald [PRC 74, 045202 (2006)]. The contact interaction current is constructed phenomenologically such that the resulting full bremsstrahlung amplitude satisfies the generalized Ward-Takahashi identity. The formalism is applied to describe the high-precision proton-proton bremsstrahlung data at 190 MeV obtained at KVI [PRC 65, 031001 (R) (2002)]. The present results show good agreement with the data, thus removing the longstanding discrepancy between the theoretical predictions and experimental data. The present investigation, therefore, points to the importance of properly taking into account the interaction current for this reaction.

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