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Search for High-Frequency Structures in Electron Emission from H_2 by 2 MeV/u C⁶⁺ Impact DANIEL GARVIN, DIANE STROHSCHEIN, JAMIE BARAN, JOHN TANIS, Western Michigan University — Electron emission from H_2 by fast ion impact has been shown to produce interference effects in the spectra of ejected electrons.¹ This interference is analogous to Young's doubleslit experiment. However, unlike Young's experiment, intramolecular scattering can give rise to secondary interferences with 2-3 times higher frequencies.¹ Recently, still higher-frequency structures were observed for $p+H_2$ collisions, and it was suggested that this might occur when the impinging particle is identical with the H₂ target nuclei.² To test this hypothesis, electron emission was measured for several observation angles using C^{6+} projectiles instead of H⁺. This work was done using the WMU tandem Van de Graaff. If no high-frequency structure occurs for C^{6+} , then the identical particle explanation emerges as a stronger possibility; if the structure persists, then another explanation must be sought. Preliminary examination of the data suggests high-frequency structures, but further detailed analysis is needed. ¹N. Stolterfoht et al., Phys. Rev. Lett. 87, 023201 (2001); and 69, 012701 (2004). ²S. Hossain et al., Phys. Rev. A72, 010701 (2005).

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