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|----------------------------|---|
| Title: | Collision-induced dissociation in (He, H ₂ + ($v = 0-2$; $J = 0-3$)) system: A time-dependent quantum mechanical investigation |
| Authors: | Sathyamurthy, N. (/jspui/browse?type=author&value=Sathyamurthy%2C+N.) |
| Keywords: | Branching ratio Centrifugal sudden Collision-induced dissociation |
| Issue Date: | 2012 |
| Publisher: | American Institute of Physics |
| Citation: | Journal of Chemical Physics, 136 (24), art. no. 244312 |
| Abstract: | The collision-induced process $\text{He} + \text{H}_2^+ (v=0-2; j=0-3) \rightarrow \text{He} + \text{H} + \text{H}^+$ has been investigated using a time-dependent quantum mechanical wave packet approach, within the centrifugal sudden approximation. The exchange reaction $\text{He} + \text{H}_2 \rightarrow \text{HeH}^+ + \text{H}$, which has a lower threshold, dominates over the dissociation process over the entire energy range considered in this study. The reaction cross section for both the exchange and dissociation channels and the branching ratio between the two channels have been computed on the McLaughlin-Thompson- Joseph-Sathyamurthy potential-energy surface and compared with the available experimental and quasiclassical trajectory results. |
| Description: | Only IISERM authors are available in the record. |
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