



Library Indian Institute of Science Education and Research Mohali



DSpace@IISERMohali (/jspui/)
/ Publications of IISER Mohali (/jspui/handle/123456789/4)
/ Research Articles (/jspui/handle/123456789/9)

Please use this identifier to cite or link to this item: <http://hdl.handle.net/123456789/3027>

Title:	Progress in sub-femtosecond control of electron localization in molecules
Authors:	Singh, K.P. (/jspui/browse?type=author&value=Singh%2C+K.P.)
Keywords:	Attosecond physics Intense field Coherent control
Issue Date:	2014
Publisher:	Indian Academy of Sciences
Citation:	Pramana - Journal of Physics, 82(1), pp.87–95.
Abstract:	Recent advances in controlled generation of intense, ultrashort laser pulses in the femtosecond and attosecond time-scales have pushed new avenues of research in the coherent control of ultrafast electron dynamics in atoms and molecules. We present a topical review on the phenomenon of control of electron localization in small dissociating molecules. By creating and controlling coherent superposition of the symmetric and antisymmetric electronic states, it becomes possible to confine the evolving electron cloud onto a preferred nucleus, thereby steering the molecule towards a desired dissociation route. We discuss the origin of the idea and various mechanisms to achieve electron localization in small molecules. To highlight recent experimental progress, we explain how one can employ few-cycle IR pulses and different attosecond extreme ultraviolet (EUV) pulses in various ways to successfully demonstrate the control of electronic dynamics. Future research opportunities and challenges on this topic are envisioned.
URI:	https://www.ias.ac.in/article/fulltext/pram/082/01/0087-0095 (https://www.ias.ac.in/article/fulltext/pram/082/01/0087-0095) http://hdl.handle.net/123456789/3027 (http://hdl.handle.net/123456789/3027)
Appears in	Research Articles (/jspui/handle/123456789/9)
Collections:	

Files in This Item:

File	Description	Size	Format	
need to add pdf....odt (/jspui/bitstream/123456789/3027/1/need%20to%20add%20pdf....odt)		8.12 kB	OpenDocument Text	View/Open (/jspui/bitstream/123456789/3027/1/need%20to%20add%20pdf....odt)

[Show full item record \(/jspui/handle/123456789/3027?mode=full\)](#)

[Statistics \(/jspui/handle/123456789/3027/statistics\)](#)

Items in DSpace are protected by copyright, with all rights reserved, unless otherwise indicated.

