

Abstract Submitted
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Relaxation dynamics of dissolved molecule probed by a phase locked pulse pair:Br₂ in Ar¹ MIZUHO FUSHITANI, HEIDE IBRAHIM, MARKUS GUEHR, NIKOLAUS SCHWENTNER, Freie Universitaet Berlin — A phase locked pulse pair (PLPP) is a strong tool to investigate the electronic coherence of molecules. Recently, we have shown that the PLPP experiment is also applicable to dissolved molecules[1]. Here, we apply this method to the Br₂/Ar system and investigate relaxation dynamics in the electronically excited *B* state of Br₂. We observed not only laser induced fluorescence (LIF) from the *B* state but also LIF from the *A* and *A'* states which are energetically lower than the *B* state. Tuning the relative phase between PLPPs provides the various LIF ratio among those states, indicating relaxation channels which can be coherently controlled. The PLPP results will be compared with those obtained by frequency resolved excitations which give the LIF ratio resulting from all possible relaxation. [1] M. Fushitani, *et al.* PCCP 7 (2005) 3143.

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