2001 Vol.35 No.1 pp.1-6 DOI:

Coupling Between the Group-Related Coherent States

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(Received: 1999-12-30; Revised:)

Abstract: When two representations of the Lie algebra are coupled, the coupling integral kernels are presented to relate the coupled to uncoupled group-related coherent states. These kernels have a connection with usual coupling coefficients. The explicit expressions of these kernels for SU(2), SO(4) and $SU_q(2)$ are given. When the direct product of three representations is formed in two ways, the recoupling integral kernels relating to the coupled group-related coherent states corresponding to two different schemes are introduced, and the relations between these kernels and the general recoupling coefficients are obtained. The properties of these kernels are discussed.

PACS: 02.20.Qs, 42.50.Dv
Key words: group-related coherent states, coupling coefficients, coupling integral kernel, recoupling integral kernel