Scattering theory for Schrödinger operators
with long-range potentials, II,
spectral and scattering theory

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This paper is a direct continuation of Part I [4] and deals with the spectral and scattering theory for Schrödinger operators with real long-range potentials. Throughout the paper, the same notations as in Part I will be used, and Theorems etc. given in Part I will be quoted as Theorem I. 5. 1 for theorems, as (I . 3. 9) for formulas, as [I . 1] for references, etc.

The present paper is divided into five sections. In §1 the summary of our main results concerning the scattering theory, that is, the completeness and invariance principle for modified wave operators, will be presented. Our assumption on the long-range potentials, which will be assumed throughout the paper, is slightly stronger than Hörmander's [I . 8] which was assumed to prove the existence of modified wave operators. §2 is assigned to developing the spectral theory for Schrödinger operators, which forms our another main result and will play an important role in establishing the results summarized in §1. In §2 the results of Y. Saitō [I . 27], [I . 28] will be used. §§3∼4 are then devoted to proving the results presented in §1 applying the abstract framework given in Part I and using the result of §2. In §5, some related problems will be considered.

We remark here that except for developing spectral theory, we only need assume the same assumption as that of Hörmander [I . 8] (cf. footnotes 6), 10) and [5]).

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§1. Assumption and main results.

In this section, we summarize our main results concerning the scattering theory for Schrödinger operators