

Field-Ordering in Chapter 7

Equations (7.10) and (7.14) in the text are correct. To derive them in compact form, however, we interchanged dummy summation indices in arriving at Eq. (7.10). In other words there are two terms that contribute to Eq. (7.10), one varying as $\sum_{\mu,\nu} \chi_\mu^* \chi_\nu$ and the other as $\sum_{\mu,\nu} \chi_\mu \chi_\nu^*$. In the second term, we interchanged indices so the final expression varies as $\sum_{\mu,\nu} \chi_\mu^* \chi_\nu$. As a consequence, both Eqs. (7.10) and (7.14) contain terms in which field χ_μ^* acts first to produce ϱ_{12} and χ_ν second to produce ϱ_{22} , *as well as* terms in which χ_ν acts *first* to produce ϱ_{21} and χ_μ^* *second* to produce ϱ_{22} . Given values of μ and ν do *not* correspond to a unique ordering of the fields. In other words each term in Table 7.1 corresponds to *two* diagrams of the type shown in Fig. 7.1. A diagram that gives the contributions to $\varrho_{12}(\mathbf{v}; \mu)$ in Eq. (7.8), $\varrho_{22}(\mathbf{v}; \mu, \nu)$ in Eq. (7.10), and $\varrho_{12}(\mathbf{v}; \mu, \nu, \sigma)$ in Eqs. (7.13–7.14) is shown in Fig. 1.

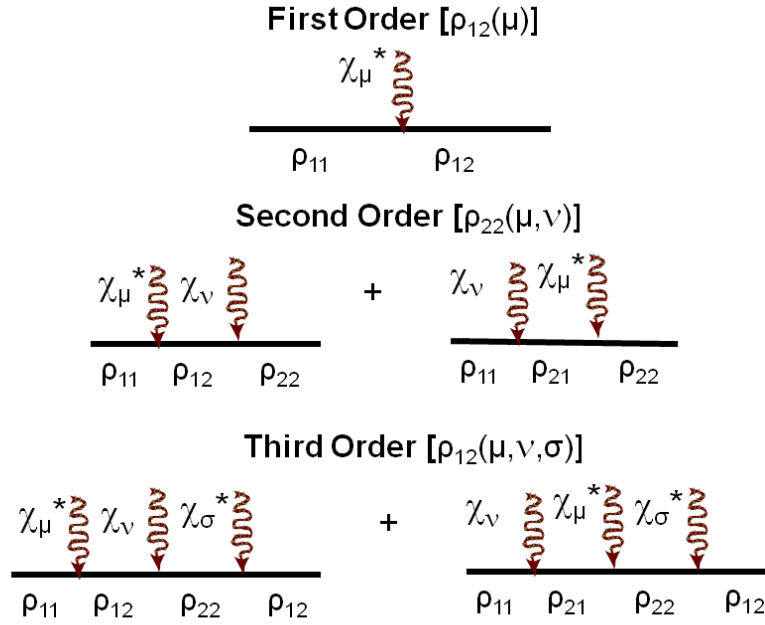


Figure 1: "Time-ordered" contributions to $\varrho(\mathbf{v}; \mu)$ in Eq. (7.8), $\varrho(\mathbf{v}; \mu, \nu)$ in Eq. (7.10), $\varrho(\mathbf{v}; \mu, \nu, \sigma)$ in Eqs. (7.13–7.14).

Figure 7.1 should be replaced by Fig. 2:

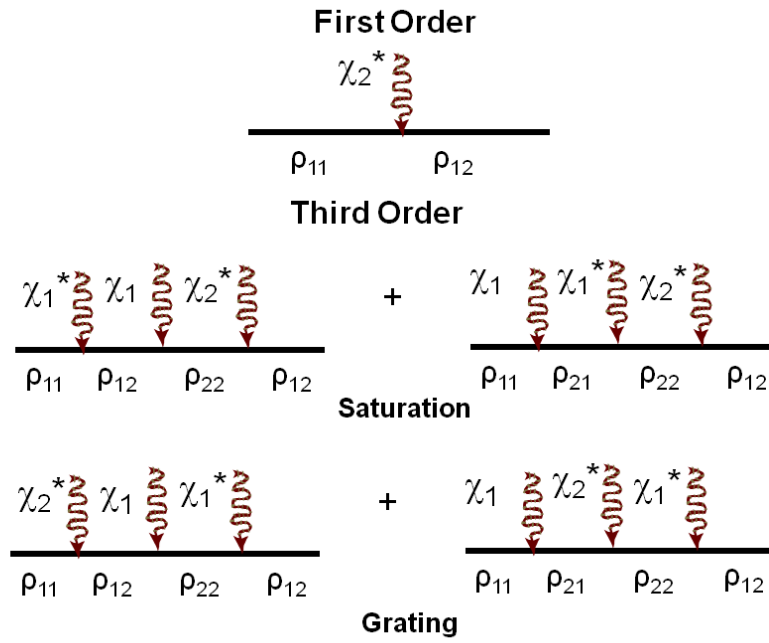


Figure 2: Corrected Fig. 7.1. The saturation terms correspond to the $\mu = 1, \nu = 1, \sigma = 2$ term in Table 7.1 and the grating terms to the $\mu = 2, \nu = 1, \sigma = 1$ term in Table 7.1.