# Explanation of Drude model discrepancy in literature

There are two expressions for the Drude model found in the literature. It is not immediately obvious how the parameters of the two expressions are related. The only difference between the two expressions of the Drude model is that is factored out and is defined differently. The following derivation of the relationship between the two expressions assumes that is a directly measured parameter, and is therefore the same in both methods. Note that the subscripts “F” and “LR” refer to the different forms of the expressions exemplified by references (for example) given by Franzen7 and LeRu,8 respectively.

|  |  |
| --- | --- |
| Franzen expression | LeRu expression |
| Solve each expression for : | |
|  |  |
| Therefore, | |

In this work, we have used the more common expression defined by Franzen, and therefore all plasma frequencies are given as , as defined above.