

Advanced Readings:

The poem from Ludwig Boltzmann about Maxwell equations, translated from German by J.P. Blewett, in a paper related to historical introduction of Synchrotron Radiation.

Reference: J.P. Blewett, Nuclear Instrument and method in Physics Research A266 (1988) 1-9.

From Boltzmann to Maxwell

Was it God whose inspiration
Let him to write these fine equations
Nature's Field to me he shows
And so my heart with pleasure glows

Before attending the lectures on application of synchrotron radiation, I recommend the students to read the paper written by J. P. Blewett, and solve or read about the following problems.

1. Translate the poem into Japanese
2. What is the most significant point in Maxwell's equations? (give at least one example)
3. Write the Maxwell-Boltzmann Distribution function and explain its physical meanings.
4. What is the Synchrotron Radiation (SR).
5. What is the relation between the Synchrotron Radiation and Maxwell's equations?
6. How can the SR be used for ultra high resolution lithography and ultra high precision fabrication in VLS industries.