

## Spectroscopy on depolarization of light emitted from excited atoms in a weakly ionized plasma

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There are many reports on Plasma Polarization Spectroscopy (PPS) of astrophysical plasmas<sup>[e.g.1, 2]</sup>. Polarization of light from plasmas reflects on the anisotropy of plasmas. With PPS we can obtain, for example, magnetic and electric fields distributions, and this technique has been applied to diagnostics of magnetic fields in the solar or fusion plasmas<sup>[e.g.3]</sup>.

In the presentation, we report on depolarization of emission from excited atoms in a weakly ionized laboratory-plasma. Even if polarized excited atoms are generated due to anisotropy of plasmas, depolarization of emission may occur before it is observed. In the case that plasmas themselves or gases around them are optically thick, dominant process of depolarization is radiation re-absorption, while in dense plasmas, depolarization is induced dominantly by atomic collisions. We study excited neon atoms (2p10 and 2p5 states) as model cases, and present the experimental results and the way of separating two kinds of the depolarization processes.

### references

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Keywords: depolarization of light, weakly ionized plasma, radiation re-absorption, atomic collision