Contribution ID: **303** Type: **Poster Presentation**

Plasma dynamics and species emission study of vanadium (IV) oxide (VO2) in oxygen background

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Abstract content
   (Max 300 words)

Optical emission spectroscopy diagnostic of VO2 plasma created by an excimer KrF laser pulse at 2 J/cm2 laser fluences was performed under range of oxygen pressure. A spatio-temporal evolution study of different species such as VI (437.85 nm), VII (326.1 nm), VIII (237.1 nm) and VO (608.56 nm) are presented and compared. The plume expansion dynamics of an ablated target of VO2 was also investigated using fast imaging. Free expansion, splitting and stopping of the plume were observed at different pressure and time delays. It was observed that at early time delays, the expansion is linear. However, as time evolves, the plume is decelerated and comes to rest. The plasma plume dynamics was analysed in the framework of Predtechensky and Mayorov model and drag model. It was discovered that Predtechensky and Mayorov model gives a general description of the plume expansion. However, at a later time delays, it is rather the drag model which is valid.

Apply to be
 considered for a student
   award (Yes / No)?

Yes

Level for award
 (Hons, MSc,
   PhD)?

PhD

Main supervisor (name and email)
and his / her institution

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Would you like to <br> submit a short paper <br> for the Conference
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No

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