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SDI Review Form 1.6

Journal Name:	**Physical Review & Research International**
Manuscript Number:	**2013_PRRI_6986**
Title of the Manuscript:	**Measurements of absolute atomic oxygen density by two-photon absorption laser-induced fluorescence spectroscopy in hot air plasma generated by microwave resonant cavity**
Type of the Article	**Research Paper**

General guideline for Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty'**, provided the manuscript is scientifically robust and technically sound.
To know the complete guideline for Peer Review process, reviewers are requested to visit this link:

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PART 1: Review Comments

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Compulsory REVISION comments	**1. Please improve most of the figure, such that axis and captions can be read easily, e.g., see Fig. 14 and others.** **2. Please improve the grammar, many hints are in the Minor revision sections** **3. Include some more details RE non-LTE and/or the LTE assumption mentioned in Abstract.**	
Minor REVISION comments	In Abstract: "about 2.1 × 10^{17} cm^{-3}" (not 2.05) In Introduction: "…gas, vibration and rotation species…" (insert 'and rotation'); …therein that describe in …" (not 'describing');"… used to generate the…" (not 'generating'); "…, the TALIF method is described together with the formalism of the calibration…" (not 'it is first recalled the TALIF…') In 2.1: "…allows maximum field… (not 'the maximization'); "…equipped with…" (not 'equipped by');"…equipped with synthetic fused silica windows…" (not 'glass windows made by…' – glass usually is opaque to uv radiation, silica is transparent, so use "…fused silica windows…"); " ..equipped with a …" (not 'by'); use a comma after pumping system to read "…pumping system, and …"; use "… in order to suppress thermal …" (not 'avoid any'); "…equipped with special windows…" (not 'by' and use plural 'windows'); "…injected from below the …" (not 'injected in the down side of the'); "schematic" (note 'scheme'); "…using a lens" (insert 'a'); "The emitted radiation is guided…" (not 'The emitted photons are..');	

	"The spectrum is recorded.." (not 'is given'); In 2.2: "Nd:YAG" (not 'Nd: YAG' – no space); "The spectral width of the laser radiation in the … (not 'width beam…'); "…463 nm, measured using two 1800 grooves/mm gratings, amount to …" (not 'by a dual of');"… that allows us to excite the two-photon transition from … to" ('allows us to') --- At end of first paragraph in 2.2, please indicate f# (f#=focal length/diameter on lens) as well. Please consider 2nd sentence in 2nd paragraph: "A 70 mm focal length lens is used for imaging onto the photocathode of a photomultiplier (…" Is this what was intended? "… 5ns resolution." (not '5ns of resolution'); "A more detailed description of our experimental arrangement is presented elsewhere.[6]" (Is this correct? ' more detailed') In 3.1: "Laser radiation is focused into…" (not 'the principle consists to..'; "and this is why" is not needed but consider to simply use "…; a high photon flux is required for two-photon excitation of atomic oxygen."; use "may not be" (not 'cannot always be') --- Can you include some cross-sections/numbers to substantiate your arguments just above 3.2 ? Line 203: clarify symbol Line 210: red "into" not needed but a period after account. Line 213: Lorentzian (capital L) Line 216: clarify symbol Line 228: perhaps use 'saturation' rather than depletion. Line 258: centered (not centred—this is an issue of British vs American English) Line 272: equation symbols! And equation number required!	

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	Line 289: Are there more than 3 points measured? Line 302: Can you describe in a few words what exactly is done when you say "using Luke et al. software." ?? In Table 1: use consistent nomenclature: 1.23 … then is should be 0.44 in line 2 (not 0,44) Line 367: Use "Table 1 shows several interesting results:" (or something similar, not so much 'can lead to several remarks') Line 396: use "Further studies are planned to investigate the non-…." (not 'will be done') Line 398: "finely" is not needed Reference for OH computation is needed, the Luke et al. only shows CF. There appear to be slight deviations in Fig.13, I wonder whether work by Parigger et al. APPLIED OPTICS _ Vol. 42, No. 30 _ 20 October 2003 would help for (1) accurate line strength of OH, (2) for plasma conditions, and (3) perhaps to address non-equilibrium. (while this work is laser-induced plasma, the analysis methods could perhaps be useful?)	
Optional/General comments	Nice work, requires a few changes and bunches of grammar changes.	

Note: Anonymous Reviewer