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Template for the Journal of Infrared, Millimeter and Terahertz Waves

First Author · Second Author · Third Author

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Abstract This is a template for submission to the Journal of Infrared, Millimeter and Terahertz Waves.

Keywords Terahertz · millimeter waves · infrared

1 General information

The Journal of Infrared, Millimeter, and Terahertz Waves[1] offers a peer reviewed platform for the rapid dissemination of original, high-quality research in the frequency window from 30 GHz to 30 THz. The topics covered include: sources, detectors, and other devices; systems, spectroscopy, sensing, interaction between electromagnetic waves and matter, applications, metrology, and communications. Manuscripts submitted to the Journal should discuss a significant advancement to the field of infrared, millimeter, and terahertz waves.

Manuscripts can be submitted to one of the following categories:

- Letters: Short articles of particular interest to the community. The review process will be expedited for this manuscript category.
- Sources: Including systems based on photoconductive antennas and related techniques, resonant tunnelling diodes, microwave devices, vacuum tube based sources, free electron lasers, synchrotrons, high power microwave sources, gas lasers, quantum cascade lasers and sources relying on parametric down conversion.

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- Detectors: THz detectors, detector arrays or part of detectors such as mixers or antennas. Devices: Modulators, reflectors, filters and waveguides as well as metamaterial-based devices.
- Systems: Including entire emitter-receiver systems, imaging systems, characterization of systems, but also data extraction algorithms and metrology problems.
- Spectroscopy: Interaction between THz waves and all states of matter; includes THz spectroscopy on solids, liquids, gases, and plasmas. Applications: Manuscripts which discuss possible applications e.g. e.g. for industrial inspection, bio-medical sensing, material science, and communications.

The Journal provides peer-reviewed rapid dissemination of original research in the frequency range between 30 GHz and 30 THz

2 Aims and Scope

The Journal of Infrared, Millimeter, and Terahertz Waves offers a peer reviewed platform for the rapid dissemination of original, high-quality research in the frequency window from 30 GHz to 30 THz. The topics covered include: sources, detectors, and other devices; systems, spectroscopy, sensing, interaction between electromagnetic waves and matter, applications, metrology, and communications.

Purely numerical work, especially with commercial software packages, will be published only in very exceptional cases. The same applies to manuscripts describing only algorithms (e.g. pattern recognition algorithms).

Manuscripts submitted to the Journal should discuss a significant advancement to the field of infrared, millimeter, and terahertz waves. Manuscripts not fitting the aims and scope, and minor extensions or copies of previous work, will not be considered for publication.

There are seven categories in which manuscripts will be considered.

2.1 Letters

Letters should be of particular interest to the community and they should be short in length. The number of figures is limited to three, the abstract should not be longer than 80 words, the main text should not exceed 1,000 words (1,250 words for two figures), the number of references is limited to fifteen. The review process will be expedited for this manuscript category.

2.2 Sources

All manuscripts discussing sources should be submitted to this category. Examples include systems based on photoconductive antennas and related techniques, resonant tunneling diodes, microwave devices, vacuum tube based

sources, free electron lasers, synchrotrons, high power microwave sources, gas lasers, quantum cascade lasers and sources relying on parametric down conversion.

2.3 Detectors

All manuscripts discussing THz detectors or detectors arrays or part of detectors such as mixers or antennas should be submitted to this category.

2.4 Devices

Examples for this category are modulators, reflectors, filters, waveguides as well as metamaterial based devices.

2.5 Systems

Manuscripts which discuss system aspects should go in this category. This could be reports on entire emitter-receiver systems, imaging systems, characterization of systems, but also data extraction algorithms and metrology problems.

2.6 Spectroscopy

Manuscripts which discuss the interaction between THz waves and all states of matter should be submitted to this category. This includes THz spectroscopy on solids, liquids, gases, and plasma.

2.7 Applications

Manuscripts which discuss possible applications e.g. for industrial inspection, bio-medical sensing, material science, and communications should go in this category.

3 Figures

Figures should be presented as part of your submission in the aproximate position that they will appear in the final form, ie. not at the end of the manuscript. They should be cited in order along the text like this 1.

On addition, plots should always have properly labeled axis with the corresponding units, the font size of the axis and any other text appearing in the figures should be adjusted in such a way that it equal or greater than the font

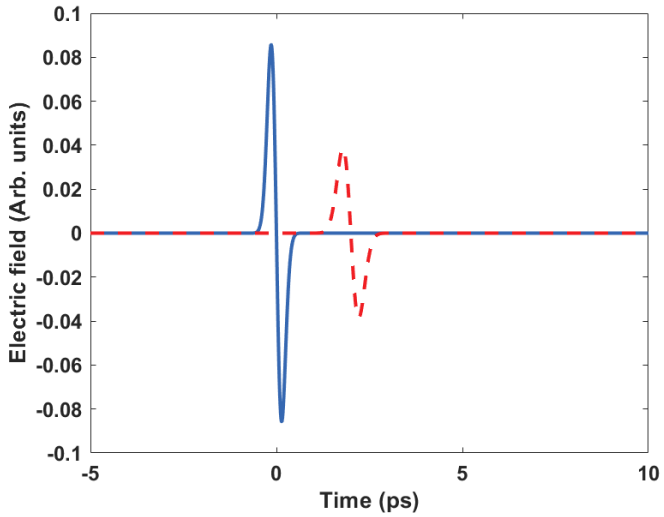

Fig. 1 Please make a description of your figure here.

size of the main text. Sub-figures should be integrated in a single graphical file, and each panel should be properly labeled and described in the caption and the text.

4 Equations

Equations are an imporant part of a submission. Please use standard AMS characters and notation. All varaibles and costants should be defined in your text. In addition, equations are part of the text narrative, not separate items, therfore appropriate punctiuation should be used. The following paragraph is an example.

The Mie theory of scattering, allows us to calculate the scattering cross section σ of a spherical particle of radius a with a given refractive index as a series of terms that involve the spherical Bessel and Newmann functions. While we will not discuss the details here, this allows us to calculate the transmittance of a particle powder layer, by approximating the particles by spheres. In order to model our powder mixture experiment, where particles of similar sizes but different refractive indices are combined, it can be demonstrated that the transmittance of such sample is given by

$$T = \exp\left(-\frac{\sigma_{\mathrm{CA}} dN\eta + \sigma_{\mathrm{RCM}} dN(1-\eta)}{2}\right), \tag{1}$$

where $N = a^{-3}$ is the density of particles, d is the powder layer thickness, the cross-sections for CA σ_{CA} and RCM σ_{RCM} are calculated for the complex refractive indices shown in the inset to Fig. 1a, which correspond to CA and RCM respectively, and η is the fraction of anthracite particles.

Acknowledgements

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References

1. Kenneth J Button. Editorial comment on the purpose of the new international journal of infrared and millimeter waves. *International Journal of Infrared and Millimeter Waves*, 1(1):1–2, 1980.