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Judul Karya Ilmiah (Artikel) : A study of the corona discharge theory for multipoint-plane configurations
 Nama/Jumlah Penulis : Asep Yoyo Wardaya, Muhammad Nur, **Jatmiko Endro Suseno (3)**
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 c. Volume, Nomor, Bulan, Tahun : Volume 93, Number 4, April 2019
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A study of the corona discharge theory for multipoint–plane configurations (Article)

Wardaya, A.Y.^{a,b}  Nur, M.^a  Suseno, J.E.^a 

^aDepartment of Physics, Faculty of Science and Mathematics, Diponegoro University, Semarang, Indonesia

^bMaster Program of Energy, School of Post Graduate Studies, Diponegoro University, Semarang, Indonesia

Abstract

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This paper presents the numerical calculation of current–voltage (I–V) characteristics that were produced by a corona discharges plasma generator for a multipoint–plane configuration in air and its comparison with the experimental results. The total number of needles in this configuration is $8 \times 4 = 32$ with the distance between the point-to-plane electrodes (denoted as c) as the variable. The I–V characteristic curve of the numerical calculation results matches that of the experimental results for cases with a large distance c ($c = 3$ and 4 cm), and it shows a large deviation for cases with a small distance c ($c = 1$ and 2 cm). Differences in the I–V characteristic curve between the experimental and numerical results are due to the symmetrical spread of the ion current from the point-to-plane electrodes, which is more pronounced for larger values of c . © 2019, Indian Association for the Cultivation of Science.

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Electric current Electric field I–V characteristics Multipoint–plane configuration Plasma generator

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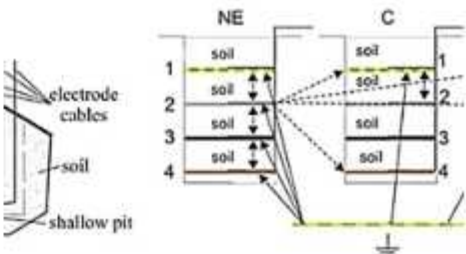


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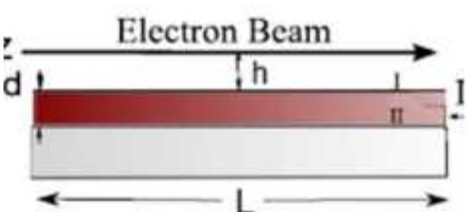
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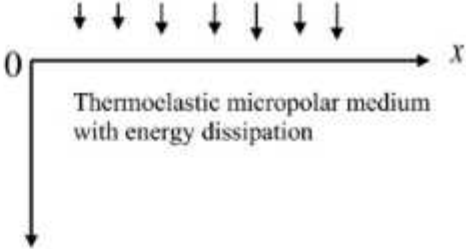
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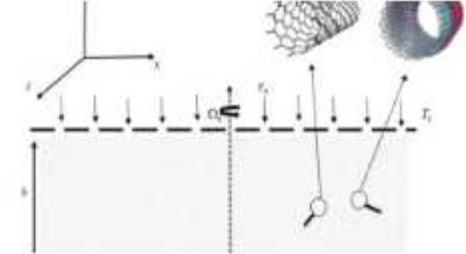
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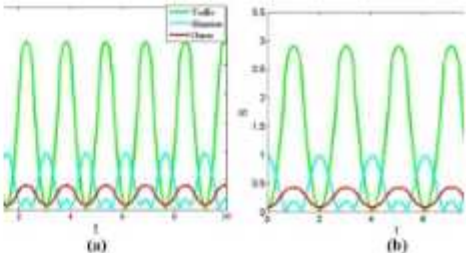
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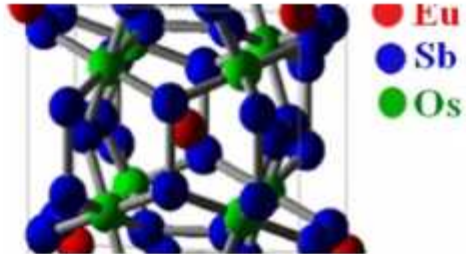
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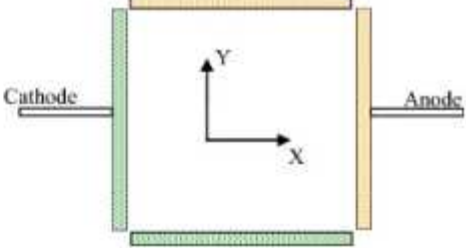
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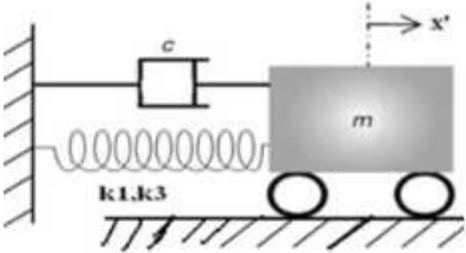
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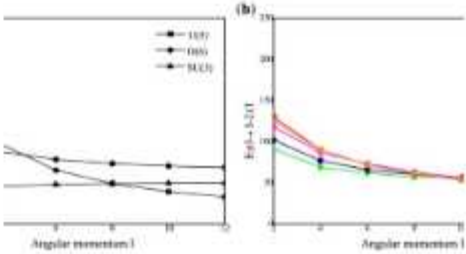


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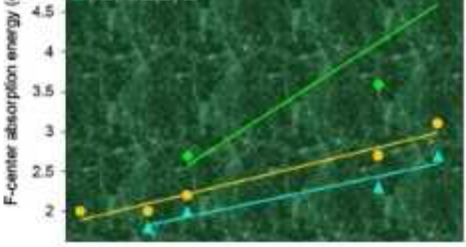
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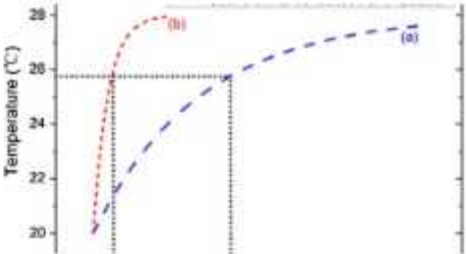
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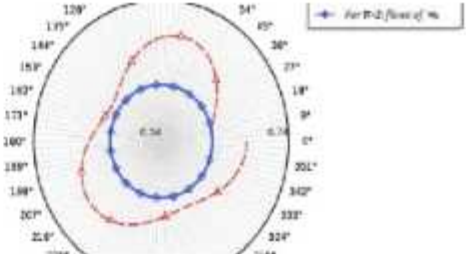
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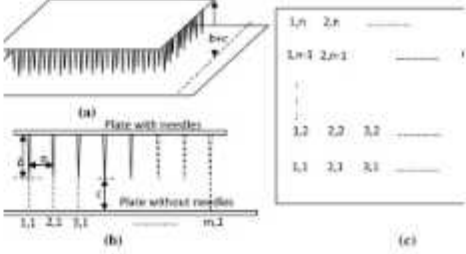
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Effect of heat laser pulse on wave propagation of generalized thermoelastic micropolar medium with energy dissipation

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Abstract

The purpose of this paper is to introduce the Green–Naghdi theory of type III to study the influence of thermal loading due to laser pulse on the wave propagation of generalized micropolar thermoelasticity. The bounding plane surface is heated by a non-Gaussian laser beam with a pulse duration of 8 ps. The problem has been solved by using the normal mode analysis. The thermal shock problem is studied to obtain the exact expressions for the displacement components, force stresses, temperature, couple stresses and microrotation. The distributions of the considered variables are illustrated graphically. Comparisons are made with the results predicted by both types of Green–Naghdi theory for different values of time.

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Satellite and ground-based observation of pre-earthquake signals—a case study on the Central Italy region earthquakes

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Abstract

The complexity in earthquake occurrences has forced scientists to adopt an interdisciplinary approach for the development short-term forecasting model. In this manuscript, the authors have presented an interdisciplinary scheme involving pre-earthquake signals like geo-electrical measurements, relative humidity (RH) and outgoing longwave radiation (OLR). Prior to the occurrence of earthquakes, these parameters show exceptional deviation and indicate the nucleation of the earthquakes at the seismically active zones. Variations in the geo-electrical potential are observed prior to the occurrence of the earthquakes due to the physical and chemical interactions between hydrogen and Earth’s interior, which in turn facilitates the migration of the H+ ions through the interior of the earth. Also, this migration process weakens lithosphere, which produces non-synchronous stress variations along the fault interface. Due to the increased stress, the radioactive radon comes out from the voids of the rocks, ionizes the atmospheric air, which leads to the release of latent heat, and can be observed in the form of anomalous drop in RH and rise in OLR. Prior to the occurrence of Central Italy region earthquakes of the year 2016 ($M > 6.0$), the above-mentioned parameters have shown a significant variation than $\pm 2\sigma$ level.

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