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PENELITIAN MANDIRI PERCEPATAN PROFESOR
KATEGORI C



Single Layer NiO Graphine Oxide terhadap Kinerja Perovskite Solar Cells

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RINGKASAN

Perovskite Solar Cells (PSC) adalah perangkat sel surya yang merupakan pengembangan dari Dye Sensitized Solar Cell (DSSC) yang berbasis organik anorganik *Dihibrida Halide*, $\text{CH}_3\text{NH}_3\text{PbI}_3$. Permasalahan yang terdapat pada PSC adalah efisiensi yang lebih rendah daripada sel surya silicon. Salah satu permasalahan yang menyebabkan efisiensi yang rendah karena terjadi rekombinasi yang disebabkan transport elektron yang rendah. Dalam penelitian ini penambahan Graphene Oksida sebagai HTL sebagai digunakan untuk meningkatkan transfer electron dari lapisan *Perovskite* menuju ke lapisan transport lubang yang menghasilkan peningkatan efisiensi PSC. Metode yang digunakan dalam penelitian ini adalah metode spin coated dengan membandingkan antara lapisan tunggal NiO dengan bilayer NiO/GO sebagai Hole Transport Layer (HTL). Pada metode ini juga dilakukan variasi putaran yaitu 700 rpm, 800 rpm, 900 rpm, 1000 rpm dan 1500 rpm untuk mendapatkan variasi ketebalan. Pengujian karakteristik PSC terdiri dari pengujian morfologi lapisan PSC dianalisis menggunakan Scanning Electron Microscopy (SEM), kandungan elemen dalam PSC dianalisis menggunakan Energy Disperse X-ray Spectroscopy (EDS), gugus fungsi pada lapisan PSC dianalisis menggunakan Fourier Transform Spektroskopi Infra Merah (FTIR) dan struktur Kristal lapisan PSC dianalisis menggunakan X-Ray Diffractometer (XRD). Pengujian fotovoltaiik dari PSC diukur menggunakan data logger untuk menentukan kinerja PSC.

Kata kunci : solar sel perovskite, graphene oksida, spin coated, ketebalan, efisiensi

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Lampiran 1. Draft Paper