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(71) Applicant *(for all designated States except US)*: **UNIVERSITY OF SURREY** [GB/GB]; Guildford, Surrey GU2 5XH (GB).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **HATTON, Ross, Andrew** [GB/GB]; Advanced Technology Institute, School of Electronics and Physical Sciences, University of Surrey, Guildford, Surrey GU2 7XH (GB). **SILVA, Sembukutiarachilage, Ravi** [GB/GB]; 29 Verran Road, Camberley, Surrey GU15 2ND (GB). **HENLEY, Simon, John** [GB/GB]; Advanced Technology Institute, School of Electronics and Physical Sciences, University of Surrey, Guildford, Surrey GU2 7XH (GB).

(74) Agents: **MUSKER, David, Charles** et al.; R.G.C. Jenkins & Co., 26 Caxton Street, London SW1H 0RJ (GB).

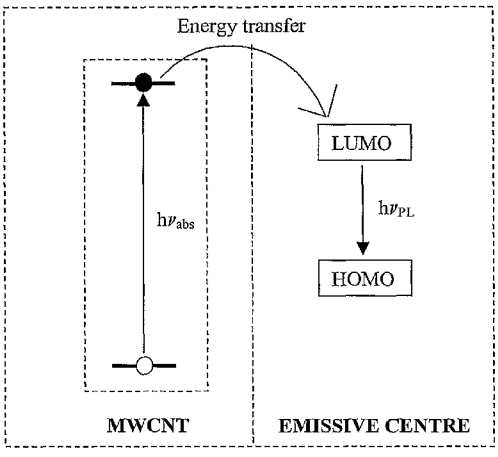
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(54) **Title:** IMPROVED CARBON NANOTUBE BASED SEMICONDUCTING DEVICES AND METHODS FOR THEIR PRODUCTION



(57) **Abstract:** A method of producing a photo-voltaic device comprising the steps of: synthesising carbon nanotubes; adapting the synthesised carbon nanotubes to provide a surface defect such as to create an effective band gap; selecting an organic semiconductor material which facilitates the efficient energy transfer between carbon nanotubes and the organic material, wherein the organic material is selected such that the energy band gap formed between the HOMO and LUMO energy levels lies within the effective band gap of the adapted carbon nanotubes; combining the adapted carbon nanotubes and the selected organic material to form a composite material.

WO 2007/074339 A1