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Poster Abstracts

P1

City transport projects with electric vehicles

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The first project dealing with verifying the feasibility of using electric vehicles in city transport systems was carried out between 1994 and 1996 in the city of Brno which is the second largest city of Czech Republic having 400 thousand inhabitants and covering an area of 230 square kilometres.

The project, with the name 'CITYCAR SYSTEM' was financed by the Ministry Environment. Three electric vehicles were used in the study. The design of these electric vehicles was based upon the chassis of the electric vehicles, ELTRA 151 L sedan and 151 pick-up truck, manufactured by the firm, SKODA ELCAR, in Ejpovice. The electric vehicles, ELA 1 and ELA 2, were manufactured by the Motor Vehicle Research Institute in Prague and were fitted with lead-acid batteries from BÄREN. The electric vehicle, PROTOEL XI, was manufactured by the firm of TESLA in Vrchlabí and was fitted with SAFT nickel/cadmium batteries. Practical assessment of all three electric vehicles was carried out during their operation by the Communications Organization of the City of Bmo, which is responsible for the work on the project 'CITY CAR SYSTEM'.

The verifying of the operation of electric vehicles in the system of city transport within the framework of this project of the Ministry of Transport and Communications has the name 'Operation and Utilization of Electric Vehicle' and will continue for the period of 4 years between 1997 and 2000. The content of this unique project includes verifying the influence of fast charging of accumulator batteries by the MinitCharger method.

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P2

Conductive nanocomposites based on (poly) pyrrole-grafted-(poly)ethylene oxide copolymers for lithium-ion battery applications

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Graft copolymers are a class of multiphase materials having unique morphologies and properties. Depending on external parameters such as molecular weight, temperature, relative composition and degree of interaction between components, a variety of mesophases (including cubic packed spheres, hexagonal packed cylinders and alternating lamellae) can be spontaneously formed. This self-assembly feature can be applied to the design of advanced nanocomposite materials. In this poster, we report the preparation of a new class of electrically conductive nanocomposites by in situ polmerization of pyrrole in the presence of a high ionically conductive (poly)ethylene oxide matrix. The cationic exchange behaviour of the polypyrrole phase, which is required for lithium-ion battery applications, can be achieved by the incorporation of a large anionic structure of lithium (poly)p-styrene sulphonate during polymerization. The resulting material shows excellent charging and discharging properties when used as cathodes for lithium-ion batteries.

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