STUDY BY RESISTIVITY MEASUREMENT AND THERMOELECTRIC POWER OF PHASE TRANSITIONS OF MATERIALS AS A FUNCTION OF TEMPERATURE AND TIME

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ABSTRACT

Electronic transport properties are important means in understanding materials and in certain industrial processes. They are directly related to atomic structure, crystal lattice, grain size and growth, defects, diffusion, intermetallic phase formation, nucleation, precipitation, aggregation, to dislocations, and gaps ... etc. The modification of the "structure" will lead to a modification of the electronic transport properties. Therefore, electronic transport can be used to characterize changes in the solid, especially phase transformations and their kinetics.As a result, the formation of new phases, the local modification of the composition or the presence of impurities cause a modification of the resistivity and the absolute thermoelectric power which become very sensitive probes for characterizing a material and its phase changes. The principle of the method used is based on the four-wire DC technique for resistivity measurements and the temperature difference (Î”T) method with constant gradient for thermoelectric power measurements. We first briefly present a very user-friendly "labView" program3 to pilot an automated experimental device for simultaneous measurement of resistivity and ATP as a function of temperature or time (at constant temperature) of hours and days. The device and the program allow us to carry out our measurements in the laboratory between 170 K and 1500 K. The "labView" program can measure either simultaneously or separately the electrical resistivity and the ATP.

Keywords: *Activation Energy, Absolute Thermoelectric Power (ATP), Electrical Resistivity, Phase Transitions.*

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CERTIFICATE OF PARTICIPATION

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Le Président du Comité d 'Organisation
Signature
M.DAOUI Abdelhakim

	Day 2: November 13, 2019
14:00 - 15:00	Poster Session III (Salle - RDC)
TOPIC 2	Cementitious materials and Materials Properties

Chairman: .....

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4.	283200	Boufligha Sadek	SYNTHESIS AND CHARATERIZATION OF STRUCTURE AND MAGNETO-TRANSPORT PROPERTIES OF La0.7Ca0.18Ba0.12Mn0.95Sn0.05O3 COMPOUND	Univ Jijel, (ALG)
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6.	283261	Hammoutene Baya	ETUDE ET CARACTERISATION DU BINAIRE TeO2-Bi2O3	Univ Tizi ouzou (ALG)
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9.	283353	Ait Merzeg Farid	ETUDE COMPARATIVE DE TROIS GISEMENTS DU MINERAI DE PLOMB/ZINC : GISEMENT CHAABET EL-HAMRA, GISEMENT D'EL-ABED ET GISEMENT D'AMIZOUR	CRSTAPC (ALG)
10.	283359	Lakhdar Abadlia	Study by resistivity measurement and thermoelectric power of phase transitions of materials as a function of temperature and time	Univ Boumerdes, (ALG)
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19.	283847	Boukhemis Ouafa	NEODYMIUM COORDINATION POLYMER WITH 1-H-BENZIMIDAZOLE-5-CARBOXYLIC ACID	CRB-Constantine, (ALG)