

Abdelaziz El Jazouli

CURRICULUM VITAE

October 2007

1 - Personal Data

Name and forename: El Jazouli Abdelaziz.

Personal address: 20, Coopérative Ibn Alhaitam, Bouskoura, Casablanca, Morocco.

Date and place of birth: 01.01.1957; Ait Atab; Morocco.

Family status: married with Krimi Saida. We have two children, Soufiane (13 years) and Hatim (11 years).

Professional address : Laboratoire de Chimie des Matériaux Solides, Département de Chimie, Faculté des Sciences Ben M'Sik (Université Hassan II Mohammédia), Avenue Idriss El Harti, Casablanca, Morocco.

Position at the university: Professor

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2 - Education and diploma.

Primary and secondary education (Morocco):1963-1974

Primary school: Ait Atab, Morocco.

Secondary school: Lycées Ibn Sina and Hassan II, Béni Mellal, Morocco.

Baccalaureate: Mathematical sciences, September 1974.

University studies.

a- Mohamed V University, Faculty of Sciences, Rabat, Morocco:

* Diplôme d'Etudes Universitaires Générales (DEUG) ; Physics and Chemistry : June 1976.

* Bachelor of Sciences; Chemistry: June 1978.

* Certificat d'Etudes Approfondies (CEA) (Advanced studies diploma) in Solid State Chemistry : June 1979.

* Diplôme d'Etudes Supérieures de 3^{ème} cycle (DES), Solid State Chemistry : December 1981.

Thesis defended in front of the examination board formed of Professors: A. DAOUDI, P. HAGENMULLER, R. BROCHU, A. EL MASLOUT, B. ELOUADI, A. KADIRI, G. LE FLEM

Subject: Elaboration and study of electrical and optical properties of phosphate glasses of $M_2O-Nb_2O_5-P_2O_5$ (M = Li, Na) systems

Supervisor: R. BROCHU, Professor at Mohamed V University.

b- University of Bordeaux , LCS-CNRS (former name of ICMCB-CNRS), France.

* Doctorat d'Etat Es Sciences, Material Sciences, University of Bordeaux, LCS-CNRS (former name of ICMCB-CNRS): October 1986.

Thesis defended in front of the examination board formed of Professors: P. HAGENMULLER, J.M. DANCE, C. DELMAS, A. EL MASLOUT, J. ETOURNEAU, C. PARENT, M. TOURNOUX, G. LE FLEM, R. OLAZCUAGA.

Subject: Elaboration and properties of new phosphates materials:

I. Glasses of $M_2O-Nb_2O_5-P_2O_5$ (M = Li, Na) systems.

II. Copper phosphates with Nasicon structure.

Supervisor: G. Le Flem, « Directeur de Recherche au CNRS »

3 - Career.

Teaching.

1980 - 1981: Assistant at Faculty of Sciences, Mohammed V University, Rabat, Morocco.

Studies: General Chemistry, Mineral Chemistry for DEUG grades.

1981 - 1986: Maitre-Assistant at Faculty of Sciences, Mohammed V University, Rabat, Morocco.

Studies: General Chemistry, Mineral Chemistry for DEUG and Bachelor grades.

1986 - 1990: Maitre de Conférence at Faculty of Sciences Ben M'Sik, Hassan II-Mohammedia University.

Studies: General Chemistry, Mineral Chemistry, Physical Chemistry, Electronic transitions in solids, Glasses for DEUG, Bachelor and Master Grades.

Since 1990: Professor at Faculty of Sciences Ben M'Sik, Hassan II-Mohammedia University.

Studies: Inorganic Chemistry, Solid State Chemistry, Pigments, Nanomaterials for Bachelor and Master Grades.

Research.

* Supervisor of thirty Master students and twelve PhD students.

* 67 scientific publications in the field of structure and properties of phosphates in both crystalline and vitreous forms.

* Over 80 oral and poster communications at conferences.

4 - Organization of conferences

1 - 5^{ème} **Rencontre Marocaine sur la Chimie de l'Etat Solide (REMCES 5)**, (5th Moroccan Meeting on Solid State Chemistry), Casablanca, October 1991.

2 - 1^{ère} **Ecole Marocaine sur les Verres (EMV1)** (first Moroccan School on Glasses), Casablanca, June 1995.

3 - Colloque sur la Physico-Chimie des Matériaux - Casablanca, June 1998. (Chair)

4 - 2^{ème} **Ecole Marocaine sur les Verres (EMV2)** (second Moroccan School on Glasses), Casablanca, May 1999.(Chair).

5- First **Conference on the Valorization of Phosphates and Phosphorous Compounds (COVAPHOS 1)**, Marrakech, October 2004.

6 – Third International Conference of the African Materials Research Society, Marrakech, December, 2005 (Chair).

7- Second International Conference on the Valorization of Phosphates and Phosphorous Compounds (COVAPHOS 2), Marrakech, October 2006.

8 - US/Africa Workshop on Frontiers in Materials Research and Education. Abuja, Nigeria, January, 2007.

9 - First African School on Materials: Tutorials on Chemistry and Physics of Inorganic and Nanostructured Materials, Casablanca – Morocco, May 2007;(Chair).

5 - Co-editor

- 1 - Journal of Alloys and Compounds, Vol. 188 (1992). Proceeding of the 5th International Seminar on the Physical Chemistry of Solid State Materials, Casablanca 1991.
- 2 - Advanced Materials Research, Vol. 1-2 (1994). Proceeding of the 6th International Seminar on the Physical Chemistry of Solid State Materials, El Jadida 1993.
- 3- Annales de chimie, Sciences des Matériaux, Vol 25. supp.1 (2000). Proceeding of the 8th International Seminar on the Physical Chemistry of Solid State Materials, Tetouan 1998.
- 4 – “Les verres et leurs applications” Glasses and their applications, Proceeding of the first Moroccan School on Glasses, Casablanca 1995.
- 5 – “Le soufflage des verres”, Proceedings of the second Moroccan School on Glasses, Casablanca 1999.
- 6- Proceedings of the First Conference on the Valorization of Phosphates and Phosphorous Compounds (COVAPHOS 1), Marrakech, October 2004 (ISBN:).
- 7- Proceedings of the Third International Conference of the African Materials Research Society, Journal of Physics Conference series, Institut of Physics (in preparation).

6 – Other responsibilities and scientific activities

- * Responsable of « Laboratoire de Chimie des Matériaux Solides » (1987-2007).
- * Head of Chemistry Department: 1993 - 1994.
- * Responsable of « UFR Sciences des Matériaux Solides ». 1997-2007
- * Member of the directing committee of the Chemistry Department: 1988, 1991, 1995, 1996.
- * Membre of the advice committee of the Faculty: 1990-2003
- * President of examination board of Bachelor Chemistry: 1988-2007.
- * Responsable of « CEA de Chimie Appliquée (Master) » : 1993 /1994.
- * Member of the national organizing committee of REMCES conferences.
- * Member of the executive committee of the Moroccan Society of Crystallography. 2000-2007
- * Member of the executive committee of the African Material Research Society. 2002-2007

7 - Conventions and contracts.

- * Action CNR - CNRS 1989-1992 Project: les phosphates de titane
- * Action intégrée N° 91/566 Project : recherche de nouvelles céramiques et vitrocéramiques de faible dilatation thermique et à propriétés optiques spécifiques.

* PARS "Chimie 10" 1998 Project : Période : 1998 -2001
Thème: Recherche de nouveaux verres et pigments à base d'éléments de transition.

* Contrat de soutien à la Publication d'ouvrages 2000 " Les verres et leurs applications"

* PICS: Project: Action intégrée franco-magnrébine: nouveaux matériaux phosphates pour l'électrochimie et l'optique.

8 – Publications

- 01** Conductivité et étude par spectroscopie Raman des verres des systèmes $M_2O-Nb_2O_5-P_2O_5$ ($M = Li, Na$).
A. El Jazouli, R. Brochu, J. C. Viala, R. Olazcuaga, C. Delmas et G. Le Flem.
Ann. Chim. Fr., **7**,285 (1982).
- 02** Sur de nouveaux phosphates de cuivre de structure Nasicon.
A. El Jazouli, A. Serghini, R. Brochu, J. M. Dance, et G. Le Flem.
C. R. Acad. Sc. Paris, **300** (II), No 11, 493 (1985).
- 03** The Nasicon-like copper (II) titanium phosphate $Cu_{0.5}Ti_2(PO_4)_3$.
A. El Jazouli, J. L. Soubeyroux, J. M. Dance, and G. Le Flem.
J. Solid State Chem., **65**, 351, (1986).
- 04** Evolution de la structure du phosphate $Na_4Nb(PO_4)_3$ lors de sa vitrification.
A. El Jazouli, C. Parent, J. M. Dance, et G. Le Flem.
C. R. Acad. Sc. Paris, **303** (II), 1005 (1986).
- 05** The Nasicon-like copper (II) zirconium phosphate $Cu_{0.5}Zr_2(PO_4)_3$ and related compounds.
A. El Jazouli, M. Alami, R. Brochu, J. M. Dance, G. Le Flem and P. Hagenmuller.
J. Solid State Chem., **71**,444, (1987).
- 06** On a new hydrogenated Cu(I) Nasicon-type phosphate $H_{0.5}Cu^{I}_{0.5}Zr_2(PO_4)_3$.
G. Le polles, A. El Jazouli, R. Olazcuaga, J. M. Dance, G. Le Flem and P. Hagenmuller.
Mat. Res. Bull., **22**, 1171 (1987).
- 07** Relationships between structure and magnetic properties of titanium (III) Nasicon-type phosphates.
A. El Jazouli, A. Nadiri, J. M. Dance, C. Delmas and G. Le Flem.
J. Phys. Chem; Solids, **49**, 779 (1988).
- 08** Structural investigation of glasses belonging to the $Na_2O-Nb_2O_5-P_2O_5$ system.
A. El Jazouli, J. C. Viala, C. Parent, G. Le Flem and P. Hagenmuller.
J. Solid State Chem., **73**, 433, (1988).

- 09** $\text{Na}_4\text{Nb}(\text{PO}_4)_3$, a material with a reversible crystal-glass transformation : structural and optical comparison.
A. El Jazouli, C. Parent, J. M. Dance, J. C. Viala, G. Le Flem and P. Hagemuller.
J. Solid State Chem., **74**, 377, (1988).
- 10** The Nasicon-type copper (I) titanium phosphate $\text{CuTi}_2(\text{PO}_4)_3$: structure and chemical properties.
A. Mbanza, E. Bordes, P. Courtine, A. El Jazouli, J. L. Soubeyroux,, G. Le Flem and P. Hagemuller.
Reactivity of Solids, **5**, 315 (1988).
- 11** Investigation of the glass-crystal transition of $\text{Na}_5\text{Ti}(\text{PO}_4)_3$.
S. Krimi, I. Mansouri, A. El Jazouli, J. P. Chaminade, P. Gravereau and G. Le Flem.
J. Alloys and Compounds, **188**, 120 (1992).
- 12** Lithium intercalation in $\text{Cu}^{\text{II}}_{0.5}\text{Ti}_2(\text{PO}_4)_3$.
I. Bussereau, R. Olazcuaga, J. M. Dance, C. Delmas, G. Le Flem and A. El Jazouli.
J. Alloys and Compounds, **188**, 120 (1992).
- 13** Glasses with possible hyperpolarizable entities.
C. Duchesne, E. Fargin, R. Olazcuaga, G. Le Flem, S. Krimi, I. Mansouri and A. El Jazouli.
J. Phys IV, C2, **261**, (1992).
- 14** Glass formation in $\text{Na}_2\text{O} - \text{TiO}_2 - \text{P}_2\text{O}_5$ system.
S. Krimi, A. El Jazouli, L. Rabardel, M. Couzi, I. Mansouri and G. Le Flem.
J. Solid State Chem., **102**, 400, (1993).
- 15** The structure of $\text{Na}_5\text{Ti}(\text{PO}_4)_3$.
S. Krimi, I. Mansouri, A. El Jazouli, J. P. Chaminade, P. Gravereau and G. Le Flem.
J. Solid State Chem., **105**, 561-566, (1993).
- 16** Characterisation and structural approach of glasses of the $\text{Ti}_2\text{O} - \text{TiO}_2 - \text{P}_2\text{O}_5$ system.
K. Nadi, A. El Jazouli and I. Mansouri.
Ann. Chim. Fr., **19**, 525-528, (1994).
- 17** Vitrification of phosphates of Nasicon-type structure.
A. El Jazouli.
Advanced Materials Research, **1-2**, 105 (1994).
- 18** A new Nasicon-like phosphate $\text{Co}_{0.5}\text{Ti}_2(\text{PO}_4)_3$.
A. El bouari, A. El Jazouli, J. M. Dance G. Le Flem and R. Olazcuaga.
Advanced Materials Research, **1-2**, 173 (1994).
- 19** Crystallochemistry and structural study of some Nasicon-like phosphates.
A. El Jazouli, A. El Bouari, H. Fakrane, A. Housni, I. Mansouri, R. Olazcuaga and G. Le Flem.
J. Alloys and Compounds, **262-263**, 49 (1997).

- 20** Preparation and structural characterization of two new titanium phosphates $\text{Na}_4\text{Ca}_{0.5}\text{Ti}(\text{PO}_4)_3$ and $\text{Ni}_{0.5}\text{TiOPO}_4$.
A. El Jazouli, S. Krimi, B. Manoun, J. P. Chaminade, P. Gravereau and D. De Waal.
Ann. Chim. Sc. Mat, **23** (n°1-2) (1998).
- 21** Crystal structure, magnetic and mössbauer investigation of a new Nasicon-type phosphate $\text{Ba}_{0.5}\text{FeNb}(\text{PO}_4)_3$.
A. Housni, I. Mansouri, A. El Jazouli, R. Olazcuaga and G. Le Flem.
Ann. Chim. Sc. Mat **23**(n°1-2) (1998).
- 22** Preparation and structural study of $\text{Na}_{(1-3x)}\text{Eu}_x\text{Ti}_2(\text{PO}_4)_3$ phosphates.
H. Fakrane, M. Lamire, A. El Jazouli, G. Le Flem and R. Olazcuaga.
Ann. Chim. Sc. Mat **23**(n°1-2) (1998).
- 23** Crystal structure of $\text{MnTiCr}(\text{PO}_4)_3$ and $\text{LiMn}_{0.5}\text{TiCr}(\text{PO}_4)_3$.
A. Aatiq, C. Delmas, A. El Jazouli and P. Gravereau.
Ann. Chim. Sc. Mat **23**(n°1-2) (1998).
- 24** Vibrational spectra and factor group analysis of $\text{Li}_{2x}\text{Mn}_{0.5-x}\text{Ti}_2(\text{PO}_4)_3$ ($x=0,0.25,0.50$)
R. Pikel, D. de Waal A. Aatiq and A. El Jazouli,
Mat. Res. Bull., **33**,N°6, 955-961 (1998).
- 25** Vibrational spectra and factor group analysis of $\text{Mn}_{(0.5+x)}\text{Ti}_{(2-2x)}\text{Cr}_{2x}(\text{PO}_4)_3$ ($0 \leq x \leq 0.50$)
R. Pikel, D. de Waal A. Aatiq and A. El Jazouli,
Vibrational Spectroscopy, **16**, 137-143(1998).
- 26** Vibrational spectra of $\text{Ni}_{0.5}\text{TiO}(\text{PO}_4)$
B. Manoun, A. El Jazouli, D. de Waal and R. Pikel
Proceeding of the XVI th International Conference on Raman Spectroscopy (ICORS), Cape Town, South Africa, 6-11 September 1998.
Edited by A.M. Heyns, Wiley, ISBN 0471 98361 6- 1998, p 176-177.
- 27** Vibrational spectra and factor group analysis of $\text{Ca}_x\text{Mn}_{0.5-x}\text{Ti}_2(\text{PO}_4)_3$ ($x=0,0.25,0.50$)
R. Pikel, D. de Waal, A. Aatiq and A. El Jazouli,
Proceeding of the XVI th International Conference on Raman Spectroscopy (ICORS), Cape Town, South Africa, 6-11 September 1998.
Edited by A.M. Heyns, Wiley, ISBN 0471 98361 6- 1998, p 212-213.
- 28** Glass – Crystal transformation of $\text{Na}_4\text{Ca}_{0.5}\text{Ti}(\text{PO}_4)_3$.
S. Krimi, A. El Jazouli, AND D. de Waal.
Proceeding of the XVI th International Conference on Raman Spectroscopy (ICORS), Cape Town, South Africa, 6-11 September 1998.
Edited by A.M. Heyns, Wiley, ISBN 0471 98361 6- 1998, p 680-681.
- 29** Ab initio determination and Rietveld refinement of the crystal structure of $\text{Ni}_{0.5}\text{TiOPO}_4$.
P. Gravereau, J. P. Chaminade, B. Manoun S. Krimi and A. El Jazouli.
Powder Diffraction **14** (1) 10-15 (1999).

- 30** A new Nasicon-like phosphate $\text{Co}_{0.5}\text{Ti}_2(\text{PO}_4)_3$.
I. Elaboration, optical and magnetic properties
R. Olazcuaga, J. M. Dance, G. Le Flem, J. Derouet, L. Beaury, P. Porcher, A. El Bouari, and A. El Jazouli.
J. Solid State Chem., **143**, 224-229 (1999).
- 31** A new Nasicon-like phosphate $\text{Co}_{0.5}\text{Ti}_2(\text{PO}_4)_3$.
II. Simulation of optical and magnetic properties
J. Derouet, L. Beaury, P. Porcher, R. Olazcuaga, J. M. Dance, G. Le Flem, A. El Bouari and A. El Jazouli.
J. Solid State Chem., **143**, 230-238 (1999).
- 32** La viscosité du maltitol
A. Nakheli, A. El Jazouli, M. Elmorabit, E. Ballouki, J. Fornazero et J. Huck
J. Phys. Condens Matter **11**, 7977-7994, (1999)
- 33** Structure of $\text{Na}_2\text{CrTi}(\text{PO}_4)_3$ from powder X – ray diffraction
S. Krimi, S. Benmokhtar, A. El Jazouli
Annales de Chimie Science des Matériaux Vol. **25**, Supp. 1, S 79 – 82 (2000)
- 34** Glass – crystal transformation of $\text{Na}_{5-2x}\text{Ca}_x\text{Ti}(\text{PO}_4)_3$ phosphates
S. Krimi, A. El Jazouli, A. Lachgar, L. Rabardel, D. de Waal, J. R. Ramos – Barrado
Annales de Chimie Science des Matériaux, Vol. **25**, Supp. 1, S 75 – 78 (2000)
- 35** Structural and magnetic study of $\text{Ni}_{(1-x)}\text{Cr}_{(1-2x)}\text{Ti}_{2x}\text{O}(\text{PO}_4)$
B. Manoun, A. El Jazouli, P. Gravereau, J.P. Chaminade, J.C. Grenier
Annales de Chimie Science des Matériaux, Vol. **25**, Supp. 1, S 71 – 74 (2000)
- 36** Preparation and characterization of phosphate glasses containing niobium and Titanium
B. Chaker, A. Housni, I. Mansouri, D. de Waal, A. El Jazouli.
Annales de Chimie Science des Matériaux, Vol. **25**, Supp. 1, S 289 – 292 (2000)
- 37** Preparation and structural study of $\text{Mn}_{(0.5-3x)}\text{Eu}_{2x}\text{Ti}_2(\text{PO}_4)_3$ phosphates ($0 \leq x \leq 0.1$)
H. Fakrane, M. Lamire, A. El Jazouli, R. Olazcuaga and G. Le Flem
Annales de Chimie Science des Matériaux, Vol. **25**, Supp. 1, S 83 – 87 (2000)
- 38** Glass formation in the $\text{Na}_2\text{O}-\text{WO}_3-\text{P}_2\text{O}_5$ system
A. Raki, H. Fakrane, M. Lamire, A. El Jazouli and D. de Waal
Annales de Chimie Science des Matériaux, Vol. **25**, Supp. 1, S 283 – 287 (2000)
- 39** Structural and Electrochemical Study of $\text{Li}_{0.5}\text{Mn}_{0.5}\text{Ti}_{1.5}\text{Cr}_{0.5}(\text{PO}_4)_3$
A. Aatiq, C. Delmas, and A. El Jazouli
Journal of Solid State Chemistry, 1006, 169 - 174 (2001)
- 40** Structural and lithium intercalation of $\text{Mn}_{(0.5-x)}\text{Ca}_x\text{Ti}_2(\text{PO}_4)_3$ phases ($0 \leq x \leq 0.5$)
A. Aatiq, M. Ménétrier, A. El Jazouli and C. Delmas
Solid State Ionics, 150, 391 - 405 (2002)

- 41** Determiation and Rietveld refinement of the crystal structure of $\text{Li}_{0.50}\text{Ni}_{0.25}\text{TiOPO}_4$ from powder X-ray and neutron diffraction
B. Manoun , A. El Jazouli, J. P. Chaminade, P. Gravereau and F. Bouree
Powder Diffraction, 17 (4) 290-294 (2002).
- 42** Crystal structure of $\text{Li}_{0.5}\text{Co}_{0.25}\text{TiO}(\text{PO}_4)$
H. Belmal, A. El Jazouli and J. P. Chaminade
Phosphorus Research Bulletin, Vol 15, 118-122 (2003)
- 43** Elaboration and characterization of two new iron titanium phosphates $\text{Fe}_{0.5}\text{TiO}(\text{PO}_4)$ and $\text{Fe}_{0.5}\text{Ti}_2(\text{PO}_4)_3$
S. Benmokhtar, A. El Jazouli, J. P. Chaminade, P. Gravereau, A. wattiaux, L. Fournès and J. C. Grenier
Phosphorus Research Bulletin, Vol 15, 127-129- (2003)
- 44** Crystal structure of $\text{Pb}_{0.5}\text{Ti}_2(\text{PO}_4)_3$
A. El Bouari and A. El Jazouli
Phosphorus Research Bulletin, Vol 15, 123-126 (2003)
- 45** Glass-crystal transformation of $\text{Na}_3\text{MgTi}(\text{PO}_4)_3$
S. Krimi, A. El Jazouli, A. Lachgar and R. Ramos-Barrado
Phosphorus Research Bulletin, Vol 15, 142-145 (2003)
- 46** Structural and vibrational studies of $\text{NaZr}_2(\text{AsO}_4)_3$
M. Chakir, A. El Jazouli and D. de Waal
Materials Research Bulletin 38 (13), 1773-1779 (2003).
- 47** Synthesis and crystallochemistry of $\text{Na}_4\text{CrNi}(\text{PO}_4)_3$
B. Manoun, A. El Jazouli, S. Krimi, and A. Lachgar
Powder Diffraction , **19** (2) , 162-164 (2004).
- 48** Synthesis, crystal structure and optical properties of BiMgVO_5
S. Benmokhtar, A. El Jazouli, J.P. Chaminade, P. Gravereau; F. Guillen; and D. de Waal.
Journal of Solid State Chemistry, 177(11), 4175-4182 (2004).
- 49** Synthesis and crystallochemistry of $\text{Na}_4\text{CrNi}(\text{PO}_4)_3$.
B. Manoun, A. El Jazouli, S. Krimi, and A. Lachgar.
Powder Diffraction, 19 (2), 162-164 (2004).
- 50** Determiation and Rietveld refinement of the crystal structure of $\text{Li}_{0.50}\text{Ni}_{0.25}\text{TiO}(\text{PO}_4)$ from powder X-ray and neutron diffraction
B. Manoun, A. El Jazouli, P. Gravereau, J. P. Chaminade, and F. Bouree

Journal of Solid State Chemistry (2005). 290-294

- 51** B. Manoun, A. El Jazouli, P. Gravereau and J.P. Chaminade
Rietveld refinements of the solid solution $\text{Li}_{(1-2x)}\text{Ni}_x\text{TiO}(\text{PO}_4)$ ($0 \leq x \leq 0.50$)
Material Research Bulletin 40 (2005) 229-238
- 52** New process of preparation, X-ray characterisation, structure and vibrational studies
of a solid solution $\text{LiTiOAs}_{1-x}\text{P}_x\text{O}_4$ ($0 \leq x \leq 1$)
M. Chakir, A. El Jazouli, J.P. Chaminade, F. Bouree and D. de Waal
Journal of Solid State Chemistry 179 (2006). 18-28
- 53** Synthesis, crystal structure and spectroscopy properties of $\text{Na}_3\text{AZr}(\text{PO}_4)_3$ (A = Mg,
Ni) and $\text{Li}_{2.6}\text{Na}_{0.4}\text{NiZr}(\text{PO}_4)_3$ phosphates.
M. Chakir, A. El Jazouli and D. De Waal
Journal of Solid State Chemistry, 179(6), 2006, 1883-1891.
- 54** Synthesis and X-ray characterization of $\text{Li}_{1.5}\text{M}_{0.25}\text{TiO}(\text{AsO}_4)$ (M=Mg, Co, Ni, Zn)
oxyarsenates.
M. Chakir, A. El Jazouli and J. P. Chaminade
Powder diffraction, 21(3), 2006, 229-235
- 55** Synthesis and crystal structure of $\text{Na}_{3.5}\text{Cr}_{1.5}\text{Co}_{0.5}(\text{PO}_4)_3$ phosphate.
M. Chakir, A. El Jazouli and J. P. Chaminade.
Powder diffraction, 21(3), 2006, 210-213.
- 57** Preparation and characterization of phosphate glasses containing titanium and
vanadium
S. Kaoua, S. Krimi, A. El Jazouli, E. K Hlil and D. de Waal S. Kaoua, S. Krimi, A.
El Jazouli, E. K. Hlil and D. De Waal
Journal of Alloys and Compounds, 429, 276-279 (2006).
- 58** Synthesis, structure, magnetic susceptibility and Mössbauer and Raman
spectroscopies of the new oxyphosphate $\text{Fe}_{0.5}\text{TiO}(\text{PO}_4)$.
S. Benmokhtar, A. El Jazouli, J. Chaminade, P. Gravereau, A. Wattiaux, L. Fournès,
J. Grenier, D. Waal
Journal of Solid State Chemistry, Volume 179, Issue 12, Pages 3709-3717 (2006).
- 59** Structural characterisation of $\text{NaPO}_3\text{-WO}_3$ glasses.
A. Raki, M. Lamire, A. El Jazouli, J.J. Videau, D. de Waal and L. Montagne.
Proceeding of the 2nd International Conference of the African Materials Research
Society, Johannesburg, South Africa, 9-11 December 2003, ISBN: 0-620-31513-X,
2003, p 51-52.
- 60** X-ray and Raman spectroscopy of BiMgVO_5
S. Benmokhtar, A. El Jazouli, J.P. Chaminade, P. Gravereau and D. De Waal.

Proceeding of the 2nd International Conference of the African Materials Research Society, Johannesburg, South Africa, 9-11 December 2003. Edited by Y. Ballim et al., University of Witwatersrand, ISBN: 0-620-31513-X, 2003, p 53-54.

- 61** On a new oxyarsenate $\text{Li}_{0.5}\text{Ni}_{0.25}\text{TiO}(\text{AsO}_4)$
M. Chakir, A. El Jazouli, J. P. Chaminade and F. Bouree.
Proceeding of the 2nd International Conference of the African Materials Research Society, Johannesburg, South Africa, 9-11 December 2003. Edited by Y. Ballim et al., University of Witwatersrand, ISBN: 0-620-31513-X, 2003, p 55-56.
- 62** A new nasicon-like cobalt(II) zirconium phosphate $\text{Na}_3\text{CoZr}(\text{PO}_4)_3$.
A. El Bouari and A. El Jazouli
Proceeding of the 2nd International Conference of the African Materials Research Society, Johannesburg, South Africa, 9-11 December 2003. Edited by Y. Ballim et al., University of Witwatersrand, ISBN: 0-620-31513-X, 2003, p 156-157.
- 63** Les phosphates : matériaux d'électrodes pour batteries au lithium.
C. Delmas, A. Aatiq et A. El Jazouli.
Proceeding de l'Ecole Franco-Maghrébine sur les phosphates.
Monastir 2002, p 195-206.
- 64** Synthesis, structure refinement and characterisation of a new oxyphosphate $\text{Mg}_{0.50}\text{TiO}(\text{PO}_4)$
Benmokhtar, S.; El Jazouli, A.; Krimi, S.; Chaminade, J.P.; Gravereau, P.; Menetrier and M.; De Waal D.
Materials Research Bulletin, Vol. 42, Issue: 5, May 3, 2007. pp. 892-903
- 65** Synthesis, structure, and physicochemical investigations of the new α $\text{Cu}_{0.50}\text{TiO}(\text{PO}_4)$ oxyphosphate
Benmokhtar, S.; Belmal, H.; El Jazouli, A.; Chaminade, J.P.; Gravereau, P.; Pechev, S.; Grenier
Journal of Solid State Chemistry, 180 (2), 2007, 772-779
- 66** Jahn-Teller phase transition in $\text{Cu}_{0.50}\text{TiO}(\text{PO}_4)$: powder structural characterization of the b-variety and thermal study (2007)
Gravereau, Pierre, Benmokhtar, Saïd, Chaminade, Jean-Pierre, El Jazouli, Abdelaziz, Lebraud, Eric, Denux, Dominique
Solid State Sciences 9, 3-4 (2007) 258-266
- 67** Synthesis, structure and characterisation of $\text{Fe}_{0.50}\text{Ti}_2(\text{PO}_4)_3$: A new material with Nasicon like structure

S. Benmokhtar, A. El jazouli, A. Aatiq, J.P. Chaminade, P. Gravereau, A. Wattiaux, L. Fournès, J.C. Grenier

Journal of Solid State Chemistry, 2007(accepted)

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New process of preparation, structure, and physicochemical investigations of the new titanyl phosphate $Ti_2O(H_2O)(PO_4)_2$.

S. Benmokhtar, A. El jazouli, J.P. Chaminade, P. Gravereau, M. Ménétrier and F. Bourée

Journal of Solid State Chemistry, 2007(accepted)