

## RESUME (January 2020)

### PERSONAL DATA

**NAME:** Christidis George  
**BIRTH DATE:** 16/07/1964  
**ADDRESS:** Technical University of Crete (TUC), Department of Mineral Resources Engineering 73100 Chania, Greece.  
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### EDUCATION

Ph.D. University of Leicester (U.K), 11/1989-7/1992, M.Sc in Industrial Mineralogy, University of Hull (U.K), 10/1988-9/1989, B.Sc in Geology, University of Athens (Greece) 10/1983-7/1987.  
 Foreign Languages: Greek (mother language), English (fluent), German (elementary).

### CAREER

4/2009-today      Professor of Economic Geology-Industrial Mineralogy TUC, Department of Mineral Resources Engineering (MRED), Greece.  
 8/2004-4/2009      Associate Professor of Economic Geology-Industrial Mineralogy TUC, MRED, Greece  
 12/1998-8/2004      Assistant Professor of Economic Geology-Industrial Mineralogy TUC, MRED Greece.  
 3/1995-11/1998      Visiting Associate Professor MRED, TUC, Greece.  
 9/1994-12/1997      Research Associate, National Technical University of Athens, Greece.  
 7/1994-8/1994      Research Associate, Technical University of Crete, Greece.  
 11/1992-6/1994      National Service.  
 8/1992-11/1992      Research Associate, TUC, Greece.  
 10/1987-8/1988      Research Associate, Department of Geology, University of Athens, Greece.

### TEACHING

Undergraduate courses: Ore deposits, Industrial minerals and rock deposits Field trip courses, Introduction to the activities of the Mineral Resources Engineer.

Postgraduate courses: Novel Clay Technologies in Environmental Protection, Economic geology of Industrial Rocks and Minerals, Methods of analysis of rocks and minerals, Geomaterials and Environment.

Supervision: Completed 3 Ph.D Theses, 14 MSc Theses (5 for IMACS), 22 undergraduate dissertations. Co-supervisor of 1 Ph.D Thesis (Univ. Patras), supervisor of 5 M.Sc Theses, and 5 undergraduate dissertations. Member of examination boards for 13 Ph.D Theses (7 in Greece, 2 in France, 1 in Belgium, 1 in Italy, 1 in Portugal, 1 in Brazil) and 3 M.Sc Theses. Currently supervision of 2 Ph.D Theses, co-supervision 1 Ph.D Thesis, 2 MSc Theses, 6 undergraduate dissertations.

### RESEARCH ACTIVITIES-SCIENTIFIC INTERESTS

Main Scientific Disciplines: Economic Geology, Mineralogy, Geochemistry, Applied Clay Science and Technology.

Interests: Genesis of bentonite and zeolite deposits, formation and growth of smectites in bentonites of various geological environments. Layer charge of smectites, charge of smectite particles. Physical and chemical properties and industrial applications of industrial rocks and minerals. Assessment of bentonite, zeolite, limestone, talc, kaolin, perlite and diatomite deposits. Modification of physical and chemical properties of industrial clays with inorganic and organic reagents. Environmental applications of industrial minerals. Application of clays in provenance geoarcheological studies. Synthesis of high added value high purity zeolites A, X and Y from raw materials and waste materials.

Completed 15 research projects funded by the EU, Greek Ministry of Education, Technical University of Crete, Fulbright Foundation and the industry.

## **COLLABORATION WITH RESEARCH INSTITUTES AND INDUSTRY**

Universities-Research Institutes: University of Poitiers (France), University of Nantes-IMN (France), University of Aveiro (Portugal), Zhejiang University of Technology, Wuhan Institute of Geosciences, China, University of Ottawa (Canada), University of Porto Allegre (Brazil), Camborne School of Mines (UK), IMN Nantes, France, University of Glasgow, UK, University of Strathclyde, UK, Technical University of Istanbul (Turkey), MEDU, Ankara, Turkey, Eskişehir Osmangazi University, Turkey, Hungarian Academy of Sciences, University of Bologna, Italy, Institute of Nuclear Chemistry CNR (Rome, Italy), Tbilisi State University (Georgia), Yerevan State University (Armenia), Yerevan Physics Institute (Armenia), US Geological Survey (Boulder-Colorado), University of Cincinnati, USA, Indiana State University USA, Johns Hopkins University USA, University of Athens, Greece, National Technical University of Athens, Greece, Greek Geological Survey (IGME).

Industry: Greece: Imerys, S&B Industrial Minerals SA, Geohellas SA, Olympos Industrial Minerals SA, Bentomine, Akrolithos SA, USA: Halliburton, Cyprus: Hellenic Mining Co.

## **DISTINCTIONS-AWARDS**

- Marion L. and Chrystie M. Jackson Mid-Career Clay Scientist Award (CMS-October 2013).
- George Brown Lecture, Mineralogical Society, London, joint BZA/BCG conference (July 2012).
- Ktenas Award (Athens Academy of Sciences) (2006).
- Fulbright Award (2002).
- Giovanni Novelli Award (Italian Committee of AIPEA) (2001).
- “Prof. I. Papastamatiou” Award (Greek Geological Survey-IGME) (1989).
- Scholarship from the Greek Academy of Sciences (1989) and from the Papadakis Foundation, Greek State Scholarship Foundation (SSF) for undergraduate studies and postgraduate studies.

## **EDITORIAL WORK**

- Principal editor of “Clay Minerals”-Journal of ECGA (since March 2013), former Associate Editor since March 2007.
- Editor of the book: “Advances in the Characterization of Industrial Minerals”, EMU Short Notes in Mineralogy, vol 9 Mineralogical Society London, (2011).
- Associate editor of Applied Clay Science (January 2011-June 2013) (formerly member of the editorial board, since March 2006).
- Member of the editorial advisory board of the Open Mineralogy Journal.
- Guest Editor with F. Rocha in a thematic issue of Clay Minerals (Vol. 43 No. 4, December 2008) with papers presented in Euroclay 2007.
- Guest Editor: Ore Geology Reviews (Vol 29, No 2, August 2006): Special Issue: Industrial Minerals-A series of thematic papers (Elsevier).
- Co-editor: Mineral Exploration and sustainable development, Millpress, Rotterdam, Netherlands (2003)

## **REVIEWING ACTIVITIES**

- Reviewer of more than 800 manuscripts in 65 scientific journals (Clays and Clay Minerals, Mineralium Deposita, Clay Minerals-Journal of fine particle science, Applied Clay Science, American Mineralogist, Mineralogical Magazine, Minerals, European Journal of Mineralogy, Lithos, Geology, Geoderma, Solid Earth, Journal of South America Earth Sciences, ACS Earth and Space Chemistry, International journal of Earth Sciences, Construction and Building Materials, Environmental Science and Technology, Environmental Science and Pollution Research, Sedimentary Geology, Geo-Marine Letters, Journal of American Ceramics Society, Ore Geology Reviews, Chemie der Erde/Geochemistry, Environmental Earth Sciences, Geochemical Journal, Central European Journal of Geosciences, Mineralogy and Petrology, Arabian Journal of Geosciences, Microchemical Journal, Mineral Processing and Extractive Metallurgy Review, Energies, Engineering Geology, Geologica Carpathica

Series Clays, Transactions of the Royal Society of Edinburgh Earth Sciences, Turkish Journal of Earth Sciences, Estonian Journal of Earth Sciences, Simulation Modelling Practice and Theory, Brazilian Journal of Chemical Engineering, Colloids and Surfaces B, Geofluids, Journal of Hazardous Materials, Journal of Materials Science, Archaeometry, Journal of Archeological Science-Reports, Archeological and Anthropological Sciences, Journal of Chemical Technology and Biotechnology, Chemical Engineering Journal, Journal of American Oil Chemist's Society-JAOCS, Open Mineralogy Journal, E-Journal of Chemistry, Research Letters in Materials Science, Science Asia, Separation Science and Technology, Industrial & Engineering Chemistry Research, Journal of Chemistry, Philosophical Magazine & Philosophical Magazine Letters, Euro-Mediterranean Journal for Environmental Integration, Desalination and Water Treatment, Surface and Interface Analysis, Adsorption Science and Technology, Journal of Advanced Research, Journal of Composite materials, Particulate Science and Technology, Boletín de la Sociedad Geológica Mexicana, Bulletin of the Geological Society of Greece)

- EU Evaluator for FP6 and FP7 in Earth Sciences and Environment. Reviewer of ITSC project proposals, funded by EU. Evaluator for International Foundation for Science (IFS, Sweden), and for research agencies in Belgium, Poland, Italy, Cyprus, Romania, Ukraine, Slovakia, Republic of South Africa and Greece.
- Reviewer (evaluator) of 2 Ph.D Theses in France, 2 in Italy, 2 in Belgium 1 in Brazil and 1 in Portugal.
- International book reviewer of 6 books.

### **INVITED LECTURES-PRESENTATIONS**

Camborne School of Mines, U.K., 1999., Technical University of Istanbul, Turkey, 2000, Indiana University USA, 2002, University of Crete, 2005, 23<sup>rd</sup> ECM Belgium, 2006, Euroclay 2007 and 2011, 9<sup>th</sup> SGA Conference Dublin, 2007., 45<sup>th</sup> Joint Conference ACS-CMS New Orleans, USA, 14<sup>th</sup> ICC, Italy 2009, Annual Meeting of the Spanish Mineralogical Society, 2009, Dreyer Conference, Chicago, 2010, George Brown Lecture, joint BZA/BCG Conference, Chester, UK, 2012, Marion L. and Chrystie M. Jackson Mid-Career Clay Scientist Award Lecture, Urbana Campaign, IL, USA 7-10 October 2013. Invited to give one of the 4 Plenary Lectures, in 15<sup>th</sup> International Clay Conference, Rio de Janeiro, Brazil, 7-11 July, 2013, but due to personal reasons the lecture was cancelled, University of Nantes, France, 22 September 2015, Workshop "Metrology for Geotechnics", Benevento, Italy, 17-18 March 2016, 4<sup>th</sup> Congress of the Russian Clay Group, 27 November-1 December 2017, 2<sup>nd</sup> IFIM Chizou China, 21-23 October 2018, School of Earth Sciences, China University of Geosciences, Wuhan, China, 20-24 October 2019.

### **INTERNATIONAL TEACHING ACTIVITIES**

Partner in the Erasmus Mundus Programme: International Master in Advanced Clay Science (IMACS) (University of Poitiers, France-coordinator), TUC, Greece, University of Aveiro (Portugal), University of Ottawa (Canada) University of Porto Alegre (Brazil). Our role is teaching applied clay mineralogy-industrial clays, clays in geotechnical applications and beneficiation and processing of clays. IMACS is the first International Master devoted to clays, it is supported and monitored by AIPEA (EU funding). Participation (lecturer) in Erasmus IP-EMU Schools devoted to clays (ADVANCE CLAY 1 and 3, Budapest and Szeged, Hungary, coordinators T. Weiszburg and E. Tombasz respectively and Rome, coordinator Maria Franca Brigatti).

### **OTHER SCIENTIFIC ACTIVITIES**

- Director of the postgraduate course "Geotechnology and Environment", MRED, TUC (2011-2014).
- Organizer of the EMU-IP school: Advances in the characterization of Industrial Minerals" (2009 TUC Crete).
- AIPEA Councilor (2013-2021).
- Elected member of CMS Council ('10-'12). Member of AIPEA Council (2013-2021), Member of the CMS council nomination committee ('13), Member of INZA Award Committee ('16), Officer of MinSoc (till 2022)

- Member of the International scientific and technical advisory committee of the Qing Yang Institute for Industrial Minerals.
- Member of the Scientific Committee: Euroclay 2007, Aveiro, Portugal 2011, Antalya Turkey and 2019, Paris France, MECC '08 '10, '12, '16 and '18, 11<sup>th</sup> Congress of the Greek Geological Society and 2<sup>nd</sup> 4<sup>th</sup> and 7<sup>th</sup> Greek Congress on Porous materials (2005 2011 and 2016), 15<sup>th</sup> International Clay Conference, Brazil, July 2013, 2<sup>nd</sup> Conference in Layer Materials, St. Petersburg, Russia, 10-15 September 2013, Zeolite'14, Serbia, June 2014.
- Member of the Organizing committee of Euroclay 2011, the 3<sup>rd</sup> and 4<sup>th</sup> Mediterranean Clay Conference, the Carpatho-Balkan Conference, 2010.
- Governor and chairman in various sessions in International Conferences
- Abstractor of "Clay Minerals" for the "Mineralogical Abstracts" (1998-2008)
- Book reviewer for Clay Minerals-Journal of Fine Particle Science
- Foreign Collaborator for ISTC project A-485: Liquid waste treatment with zeolites
- Membership: Greek Geological Society (since 1984), MSA (since 1986), the MinSoc (London) (since 1988), MAC (since 1988), CMS, (since 1990), European Crystallographic Society (since 2006).

## PUBLICATIONS

1 Ph.D Thesis, 1 M.Sc Thesis 1 undergraduate dissertation, 100 peer review publications in scientific journals (5 additional currently under review), books and International and National Conference Proceedings with referees 70 abstracts in National and International Conferences, 1 computer program (with DD Eberl) 1 patent. More than 2200 non self-citations (Google Scholar), h-index: Google Scholar 24, Web of Science 21, Researchgate 21, Scopus 20.

## SELECTED REPRESENTATIVE PUBLICATIONS (AFTER 2000)

1. Christidis, G. (2001) Formation and growth of smectites in bentonites: A case study from Kimolos Island, Aegean, Greece. *Clays and Clay Minerals*, 49, 204-215
2. Christidis G.E. & Eberl D.D. (2003) Determination of layer charge of smectites. *Clays Clay Miner.*, 51, 644-655.
3. Christidis, G.E., Makri, P. and Perdikatsis V. (2004) Influence of grinding on the structure and colour properties of talc, bentonite and calcite white fillers. *Clay Miner.*, 39, 163-175.
4. Christidis G.E. Blum A.E. & Eberl D.D. (2006) Influence of layer charge and charge distribution of smectites on the flow behaviour and swelling of bentonites. *Applied Clay Science*, 34, 125-138.
5. Christidis, G.E. (2006) Genesis and compositional heterogeneity of smectites. Part III. Alteration of basic pyroclastic rocks. A case study from the Troodos Ophiolite Complex, Cyprus. *Amer. Mineral.*, 91, 685-701.
6. Christidis G.E. & Mitsis I. (2006) A new Ni-rich stevensite from the ophiolite complex of Othrys, central Greece. *Clays and Clay Minerals*, 54, 653-666. .
7. Livi K.J.T., Christidis, G.E., Arkai P. & Veblen, D.R. (2008) White mica domain formation: A model for paragonite margarite and muscovite formation during prograde metamorphism. *Amer. Mineral.* 93, 520-527.
8. Christidis, G.E. (2008) Do bentonites have contradictory characteristics? An attempt to answer unanswered questions. *Clay Minerals*, 43, 515-529.
9. Marantos, I., Marcopoulos Th., Christidis, G.E. & Perdikatsis, V. (2008) Geochemical characteristics of the alteration of volcanic and volcanoclastic rocks in the Feres Basin, Thrace, NE Greece. *Clay Minerals*, 43, 575-595.
10. Christidis, G.E. & Huff, W.D. (2009) Geological aspects and genesis of bentonites. *Elements*, 5, 93-98
11. Christidis, G.E. (2011): Industrial Clays. In Christidis G.E. (ed): "Advances in the characterization of industrial minerals" EMU Notes in mineralogy, Mineralogical Society London, vol. 9 pp. 341-414.
12. Christidis G.E. (2011): The concept of layer charge of smectites and its implications for important smectite-water properties. In Brigatti M.F. and Mottana A. (eds): "Layered mineral structures and their

- Application in Advanced Technologies” EMU Notes in mineralogy, Mineralogical Society London, vol. 11.
13. Christidis G.E. (2013). Assessment of Industrial Clays. In Bergaya F. et al. (eds): “Handbook of Clay Science”, 2<sup>nd</sup> edition, Elsevier, Amsterdam
  14. Skoubris, E., Chryssikos, G.D., Christidis, G.E. & Gionis, V. (2013) Structural characterization of reduced charge montmorillonites. Evidence based on FTIR spectroscopy, thermal behavior and layer charge systematic. *Clays and Clay Minerals*, **61**, 83-97.
  15. Christidis, G.E. & Koutsopoulou E. (2013) A simple approach to the identification of trioctahedral smectites, with X-ray diffraction. *Clay Minerals*, **48**, 687-696.
  16. entonite and sepiolite-bentonite mixed clay suspensions. *Applied Clay Science*, **90**, 165-174.
  17. Christidis G.E., Shriner, C.M. & Murray H.H. (2014) An integrated methodological approach for source clay determination of ancient ceramics. The case of Aegina Island, Greece. *Clays & Clay Minerals*, **62**, 447-469.
  18. Chemedá, Y.C., Deneele, D. Christidis, G.E. & Ouvrard G. (2015) Influence of hydrated lime on the surface properties and interaction of kaolinite particles. *Applied Clay Science*, **107**, 1-13.
  19. Georgiou C.D., Sun, H., McKay, C.P., Grintzalis, K., Papapostolou, I., Zisimopoulos, D., Zhang, G., Koutsopoulou, E., Christidis G. & Margiolaki, I. (2015) Detection of photochemical superoxide radicals in chemically reactive desert soils. *Nature Communications* (DOI: 10.1038/ncomms8100)
  20. A. Kuligiewitz, A. Derkowski, K. Emmerich, G.E. Christidis, K. Tsiantos, V. Gionis & G.D. Chryssikos (2015) Measuring the layer charge of dioctahedral smectite by O-D- vibrational spectroscopy. *Clays & Clay Minerals*, **63**, 443-456.
  21. E. Photos-Jones, G.E. Christidis, M. Piochi, C. Keane, A. Mormone, G. Balassone, V. Perdikatsis, A. Leanord (2016) Testing Greco-Roman medicinal minerals: The case of solfataric alum. *J. Archeol. Sci:Rep.* **10**, 82-95.
  22. E. Photos-Jones, C.W. Knapp, D. Venieri, G.E. Christidis, C. Elgy, E. Valsami-Jones, Gounaki, N.C. Andriopoulou (2018) Greco-Roman mineral (litho)therapeutics and their relationship to their microbiome: The case of the red pigment miltos. *J. Archeol. Sci:Rep.* **22**, 179-192.
  23. G. E. Christidis, C. Aldana , G. D. Chryssikos, V. Gionis , H. Kalo, M. Stöter, J. Breu and J.-L. Robert (2018) The Nature of Laponite: Pure Hectorite or a Mixture of Different Trioctahedral Phases? *Minerals*, **8**, 314; doi:10.3390/min8080314.
  24. G. Leontopoulou, G. E. Christidis, M. Geraga, G. Papatheodorou, E. Koutsopoulou (2019) A novel mineralogical approach for provenance analysis of late Quaternary marine sediments: The case of Myrtoon Basin and Cretan Sea, Aegean, Greece. *Sedimentary Geology*, **384**, 70-84.
  25. E. Koutsopoulou, A. Papagiannopoulos, G. E. Christidis, G. Tassis, N. Spiliopoulos (2019) Surface plasmon resonance study of adhesion kinetics of smectites on the Au/water interface: Clay and organo-clay film formation. *Appl. Clay Sci*, **175**, 1-9.
  26. S. Kadir, T. Kūlah, H. Erkoyun, G.E. Christidis, Arslanyan R. (2019) Geology, Mineralogy Geochemistry and genesis of bentonite deposits in Miocene volcano-sedimentary units of the Balıkesir region, Western Anatolia, Turkey. *Clays and Clay Minerals*, (August 2019)
  27. F. Fontaine, G. E. Christidis, J. Yans, S. Hollanders, A. Hoffman & N. Fagel. Characterization and origin of two Fe-rich bentonites from Westerwald (Germany) *Applied Clay Science* (in press)

Six (6) submitted manuscripts are currently under review in the following journals: *Applied Clay Science*, *Archeological and Anthropological Sciences*, *Clay Minerals*, *Journal of Ethnic Pharmacology and Minerals*.