

ΒΙΟΓΡΑΦΙΚΟ ΣΗΜΕΙΩΜΑ

Δρ. ΝΙΚΟΛΑΟΣ ΒΑΡΟΤΣΗΣ

**Ομότιμος Καθηγητής
ΠΟΛΥΤΕΧΝΕΙΟΥ ΚΡΗΤΗΣ**



- **Ιδρυτής και τ. Διευθυντής του Εργαστηρίου Ανάλυσης Ρευστών και Πυρήνων Υπόγειων Ταμιευτήρων**
- **τ. Διευθυντής του Τμήματος Έρευνας & Εφαρμογών PVT & FLUID ANALYSIS, της πολυεθνικής εταιρείας SCHLUMBERGER plc, στο Παρίσι, Γαλλία**
- **τ. Αντιπρύτανης Οικονομικού Προγραμματισμού και Ανάπτυξης Διευθυντής του Πολυτεχνείου Κρήτης**
- **τ. Πρόεδρος της Επιτροπής Ερευνών του Πολυτεχνείου Κρήτης**
- **τ. Πρόεδρος του Τμήματος Μηχανικών Ορυκτών Πόρων του Πολυτεχνείου Κρήτης**
- **Πρόεδρος του Περιφερειακού Συμβουλίου Έρευνας και Καινοτομίας της Περιφέρειας Ιονίων Νήσων**

Προσωπικά Στοιχεία

Όνοματεπώνυμο : **ΝΙΚΟΛΑΟΣ ΒΑΡΟΤΣΗΣ**
Ημερομηνία γεννήσεως : 13 Μαρτίου 1953
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Σπουδές

- **PhD** in Petroleum Engineering, Heriot-Watt University, Scotland, 1984
- **MEng** in Petroleum Engineering, Heriot-Watt University, Scotland, 1977
- **Δίπλωμα** Χημικού Μηχανικού, Εθνικό Μετσόβιο Πολυτεχνείο, 1976

Θέμα Διδακτορικής Διατριβής : “ Εργαστηριακή και Πειραματική Διερεύνηση της Ισορροπίας Φάσεων Συστημάτων Υδρογονανθράκων-Αερίων Εγγυσης κοντά στο Κρίσιμο Σημείο”

Θέμα Διατριβής MEng : “Η Χρήση Ψευδοσυναρτήσεων στην Προσομοίωση Ταμειυτήρων Υδρογονανθράκων”

Τρέχοντα Καθήκοντα

- **Πρόεδρος** του Περιφερειακού Συμβουλίου Έρευνας και Καινοτομίας της Περιφέρειας Ιονίων Νήσων 2020-
- **Διευθυντής** του προγράμματος σπουδών της Μηχανικής στο MSc in Oil & Gas του Διεθνούς Πανεπιστημίου, 2012-

Προηγούμενα Ακαδημαϊκά Καθήκοντα

- **Καθηγητής** της Μηχανικής Ταμιευτήρων της Σχολής Μηχανικών Ορυκτών Πόρων του Πολυτεχνείου Κρήτης, 1990-2020
- **Διευθυντής** του Εργαστηρίου Ανάλυσης Ρευστών και Πυρήνων Υπόγειων Ταμιευτήρων του Πολυτεχνείου Κρήτης 1991-2020
- **Μέλος** του Τομεακού Συμβουλίου Μηχανικής του Εθνικού Συμβουλίου Έρευνας και Καινοτομίας (ΕΣΕΚ), 2018-2020

Ερευνητική και Βιομηχανική Εμπειρία

- **Σύμβουλος** από το 1990 σε θέματα Ισορροπίας Φάσεων και Ανάλυσης Ρευστών για την Schlumberger, την Oilphase plc, την Schlumberger Oilfield Services, την North Aegean Petroleum Corporation plc, την NAPC, την Energean και την Kavala Oil
- **Συνιδρυτής** της εταιρείας Smartoil η οποία έχει πελατολόγιο διεθνείς εταιρείες όπως η Petroleum Experts (Petex) και η KAPPA
- **Διευθυντής** του Τμήματος Έρευνας και Εφαρμογών σε PVT and Fluid Analysis της πολυεθνικής εταιρείας Schlumberger στο Παρίσι, Γαλλία, 1984-1990
- **Προϊστάμενος** της Ομάδας Ισορροπίας Φάσεων στο Πανεπιστήμιο Heriot-Watt University, Σκωτία, 1980-1984

Διοικητική Εμπειρία

- **Αντιπρύτανης Οικονομικού Προγραμματισμού & Ανάπτυξης του Πολυτεχνείου Κρήτης**, 2005-2010 (εξελέγη για δύο διαδοχικές θητείες)
- **Πρόεδρος της Επιτροπής Ερευνών του Πολυτεχνείου Κρήτης**, 2005-2010 (εξελέγη για δύο διαδοχικές θητείες)
- **Πρόεδρος του Τμήματος Μηχανικών Ορυκτών Πόρων του Πολυτεχνείου Κρήτης**, 1999-2003 (εξελέγη για δύο διαδοχικές θητείες)

- **Πρόεδρος της Εταιρείας Αξιοποίησης Περιουσίας του Πολυτεχνείου Κρήτης (2008-2010)**

Επιστημονικές Δημοσιεύσεις

Έχει συγγράψει και δημοσιεύσει σε διεθνή περιοδικά και διεθνή συνέδρια πάνω από 80 εργασίες τεχνικού περιεχομένου

Κύρια ερευνητικά έργα στα οποία ήταν υπεύθυνος

- “MOREOIL, Evaluation of the Miscible Gas Injection In Oil Reservoirs by Monitoring the Asphaltenes Concentration”, Funded by: European Union (EU) Research Directorate
- “ANAXIMANDER, Exploration and Evaluation of the Eastern Mediterranean Sea Gas hydrates and the Associated Deep Biosphere”. Funded by : EU Research Directorate
- “Hydrate Autoclave Coring Equipment System” Funded by: EU, Sustainable Marine Ecosystems MAST3 (EVK3-2000-00549).
- “Study of the influence of mineralogy and overburden pressure on the phase behavior and formation kinetics of structure II gas hydrates contained in marine sediments.” Funded by: EU Research Access to the European infrastructure for energy reserve optimization, EIERO
- “Increase of the domestic capacity recycling used mineral oils” Funded by the Greek General Secretary of Research and Technology
- “Physical bioremediation of organic pollutants in the subsoil and in water reservoirs” Funded by the Greek General Secretary of Research and Technology
- “Explicit modeling of phase behavior calculations for use in reservoir and production modeling”, 2013-2017. Petroleum Experts, Edinburgh, UK.
- “Development of a set of ANN models for phase behavior calculations acceleration during reservoir simulation”, 2011. Kappa Exploration & Production Software Training and Consulting, Sophia-Antipolis, France.
- “Development of a fully automated GC-processing software for reservoir fluids”, 2011. Oilphase division of Schlumberger, Aberdeen, UK.
- “Development of a method to estimate the shrinkage factor range for recovered reservoir fluid samples”, 2011. Oilphase division of Schlumberger, Aberdeen, UK.
- “Feasibility study on the development of a fully automated gas chromatography data processing software”, 2008. Schlumberger Oilfield UK plc, Aberdeen, UK.

- “Gas chromatography round robin project results evaluation”, 2008. Schlumberger Oilfield UK plc, Aberdeen, UK.
- “Development of an ANN based algorithm for the prediction of fluid PVT properties at modified line conditions used in conjunction with the Active Sampling Device (ASD)”, 2007. Schlumberger Oilfield UK plc, Aberdeen, UK. The method was successfully industrialized and is still available to the oil industry worldwide
- “Development of neural network-based algorithms for the downhole prediction of reservoir fluids GOR”, 2006-2008. Schlumberger Wireline & Testing, Sugarland, TX, USA. The method was successfully industrialized and is still available to the oil industry worldwide
- “Use of pattern recognition methods for speeding up phase behavior calculations in reservoir simulation”, 2005. Schlumberger SiS, Abingdon, UK.
- “Feasibility study for the development of an EoS emulation tool by using function-learning models to rapidly provide direct PVT values during reservoir simulation”, 2005. Schlumberger Oilfield UK plc, Aberdeen, UK.
- “Development of ANN based PVT correlations covering robustly and with enhanced accuracy the MPFM applications for oils and gas condensates at a very wide line conditions range”, 2004-2006. Schlumberger Oilfield UK plc, Aberdeen, UK. The method was successfully industrialized and is still available to the oil industry worldwide
- “Sensitivity analysis of measurements uncertainty for the Vx flowmeter”, 2003. Oilphase division of Schlumberger, Aberdeen, UK.
- “Development of an ANN model to predict the PVT properties of the MDT/OFA downhole samples”. 2002-2004, Funded by Schlumberger. The method was successfully industrialized and is still available to the oil industry worldwide
- “Development of a hybrid ANNs set of models for PVT Expert”, 2000-2002. Division of SEPS (UK) Ltd, Aberdeen, UK. The method was successfully industrialized and is still available to the oil industry worldwide
- “Retraining of the PVT Expert tool. Development of the quality assurance tools APE-IN and APE-OUT”, 2001. Oilphase, Division of SEPS (UK) Ltd, Aberdeen, UK.
- “Development of the APE-OUT (Accuracy of Prediction Estimator) system and connection to the APE-IN. Retraining of the PVT Expert”, 2000. Oilphase division of Schlumberger, Aberdeen, UK.
- “Development of a confidence estimator for oils for the PVT Expert tool, compatible to the WFAS system”, 1999. Oilphase division of Schlumberger, Aberdeen, UK.
- “Feasibility study for the determination of the mud filtrate contamination of reservoir fluid samples”, 1999. Oilphase division of Schlumberger, Aberdeen, UK.

- “Development of pattern recognition-based tools for the on-site prediction of the properties of a full PVT report with the PVT Express service”, 1996-2000. Schlumberger Wireline & Testing, Clamart, France.
- “Development of an all purpose neural network model for the determination of PVT properties of hydrocarbon fluids” Funded by: Schlumberger
- “Development of a software for the automatic calculation of Black Oil Tables from a PVT Report” Funded by: Schlumberger
- “Experimental measurements and testing of core plugs recovered by the Epsilon-1 well”. Funded by Energean Oil & Gas plc.
- “SARA Analysis of solid deposits and crude oil from the Prinos field well PA-35”. Funded by Energean Oil & Gas plc
- “Feasibility study for the determination of the mud filtrate contamination of reservoir fluid samples” Funded by: Oilphase Schlumberger
- “Experimental study of the fluid properties of the exploratory well Epsilon-1”, Funded by: KAVALA OIL
- “Geochemical study of the oil produced in exploratory well PN-2 in North Prinos reservoir”. Funded by: Wintershall AG, Kassel
- “Experimental study of the rock properties of the exploratory well PN-2 in North Prinos reservoir”, Funded by: North Aegean Petroleum Corporation (NAPC)
- “Experimental study of the fluid properties of the exploratory well PN-2 in North Prinos reservoir”, Funded by: North Aegean Petroleum Corporation (NAPC)
- “Evaluation of the fluid of the production well PN-2 in North Prinos reservoir”, Funded by: North Aegean Petroleum Corporation (NAPC)
- “Experimental study of asphaltenes composition and development conditions for the oil produced in North Prinos reservoir”, Funded by: North Aegean Petroleum Corporation (NAPC)
- “Evaluation of all the PVT reports issued for the Prinos Reservoir”. Funded by North Aegean Petroleum Corporation (NAPC)

Διπλώματα Ευρεσιτεχνίας

- United States Patent No. 7,966,273 B2, Jun. 21, 2011 with the title «Predicting Formation fluid Property through Downhole fluid Analysis using Neural Networks” by Peter Hegeman, Chengli Dong, Charles Woodburn, Graham Birkett, Nikos Varotsis, Vassilis Gaganis
- United States Patent No 4,864,843 title “Method and Apparatus for Chromatographic Analysis in Particular of Petroleum Liquids by Paul Guieze and Nikos Varotsis
- Έχει επίσης και 2 Ευρωπαϊκά Διπλώματα Ευρεσιτεχνίας

Διακρίσεις

- Εξελέγη Πρόεδρος του Περιφερειακού Συμβουλίου Έρευνας και Καινοτομίας της Περιφέρειας Ιονίων Νήσων, 2020
- Ορίστηκε από το Υπουργείο Έρευνας μέλος της Τομεακής Επιτροπής του Εθνικού Συμβουλίου Έρευνας και Καινοτομίας (ΕΣΕΚ), 2018
- Έλαβε το 2018 την διάκριση Εξαιρετικής Συμβολής ως κριτής του διεθνούς περιοδικού Fluid Phase Equilibria Journal
- Έλαβε το 2017 την διάκριση Εξαιρετικού Τεχνικού Κριτή του διεθνούς περιοδικού SPE Journal
- Συγκαταλέχτηκε το 1989 από τη Διεύθυνση λόγω επίδοσης στο ανώτερο 5% των μηχανικών της εταιρείας Schlumberger
- Τεχνικός Κριτής των διεθνών περιοδικών SPE Reservoir Evaluation & Engineering Journal, SPE Journal Fluid Phase Equilibria, Journal of Natural Gas Science & Technology, Fuel, Computers & Geosciences, Journal of Petroleum Science & Engineering, Chemical Engineering Science, καθώς και του Journal of Canadian Petroleum Technology
- Επιλέχτηκε από την Society of Petroleum Engineers σαν συγγραφέας της ηλεκτρονικής βιβλιοθήκης της Μηχανικής Πετρελαίου PetroWiki, που δημιουργήθηκε από την SPE
- Προσκεκλημένος Ομιλητής από διάφορα παραρτήματα της Society of Petroleum Engineers (SPE) ανά τον κόσμο

Άλλες Επιστημονικές Δραστηριότητες

- Έδωσε, κατόπιν προσκλήσεων, σειρά σεμιναρίων, διαλέξεων και τεχνικών παρουσιάσεων στην Ευρώπη (Ηνωμένο Βασίλειο, Γαλλία, Νορβηγία, Ιταλία, Ελλάδα), στη Μέση Ανατολή (Αίγυπτος, Πακιστάν, Ντουμπαΐ, Άμπου Ντάμπι, Κατάρ, Υεμένη), στη ΝΑ Ασία (Ινδονησία, Μαλαισία, Μπρουνεΐ), στην Αφρική (Γκαμπόν, Γκαμπίντα), κλπ σε Μηχανικούς Πετρελαίου πολλών εταιρειών και κυβερνητικών στελεχών σε θέματα Μηχανικής Ταμιευτήρων, Ισορροπίας Φάσεων και Χαρακτηρισμού Ρευστών
- Δίδαξε Μηχανική Πετρελαίου, Ισορροπία Φάσεων και Χαρακτηρισμό Ρευστών στη Σχολή Επαγγελματικής Εξέλιξης των Μηχανικών Πεδίου της εταιρείας Schlumberger's στο Παρίσι, Γαλλία
- Έδωσε εντατικό εκπαιδευτικό σεμινάριο σε θέματα PVT για λογαριασμό της εταιρείας Woodside, στο Περθ της Αυστραλίας το 1999

Κυριώτερες δημοσιευμένες εργασίες σε Διεθνή Περιοδικά και Συνέδρια

- Mawlod A., Memon A., Varotsis N, Gaganis V., Anastasiadou V., Nighswander J., Al Shuaibi M. “Reducing Composition Characterization Uncertainties Through Advanced Machine Learning (ML) Techniques – Data Clustering”, SPE-211378-MS, ADIPEC-2022, Abu Dhabi, October 2022
- Aslanidis P., Marinakis D., Puntervold T., Gaganis V., Varotsis N. “Density Changes at Supercritical and Near-Critical Conditions by Increasing Co₂ content in Synthetic Hydrocarbon Mixtures-A Comparison Between Experiments and Simulation Predictions, SPE-209663-MS, 83rd EAGE Annual Conference & Exhibition. Madrid, 6-9 June 2022
- Marinakis D, Varotsis N. ”Experimental study of the gas hydrates dissociation effect on the properties of the host marine sediment”, accepted for oral presentation at the World Multidisciplinary Earth Sciences Symposium – WMESS, Prague, Czech Republic, September 3-7, 2018
- Gaganis V., Varotsis N. “Rapid and thermodynamically consistent phase behaviour calculations in process simulation“ paper admitted for oral presentation at the 29th European Symposium on Applied Thermodynamics, ESAT 2018, Prague, Czech Republic, June 10-13, 2018
- Gaganis V., Varotsis N. “Is using rigorous thermodynamics for fully compositional simulation worth the effort?” presented at the 17th International Multidisciplinary Scientific Geoconference SGEM 2017, Vienna, 26-30 November 2017, Conference Proceedings Vol.17, Issue 15, pp.273-280
- Gaganis V., Kourlianski E., Varotsis N. “An accurate method to generate composite PVT data for black oil simulation”, Journal of Petroleum Science and Engineering, 157 (2017) 1-13
- Gaganis V., Varotsis N., “A simplified thermodynamic approach for reservoir fluid phase behavior mapping with depth” presented at the 29th European Symposium on Applied Thermodynamics, ESAT 2017, Bucharest, Romania, May 18-21, 2017
- Gaganis V., Varotsis N., “Thermodynamic properties of fluids in the upstream petroleum engineering: from rigorous thermodynamics to soft computing” presented at the 29th European Symposium on Applied Thermodynamics, ESAT 2017, Bucharest, Romania, May 18-21, 2017
- Gaganis V., Varotsis N., “Identification of the compositional path followed during Reservoir Simulation improves the accuracy and accelerates the phase behavior calculations”, SPE-180124-MS, presented at the 78th EAGE Conference and Exhibition, Vienna, Austria, 30 May-2 June 2016
- Marinakis D, Varotsis N., “Gas hydrate dissociation affecting the permeability and consolidation behavior of deep sea host sediment”, accepted for publication, Journal of Natural Gas Science & Engineering, 2015

- Gaganis V., Varotsis N., "An integrated approach for rapid phase behavior calculations in compositional modelling", accepted for publication, Journal of Petroleum Science & Engineering, March 23rd, 2014
- Marinakis D, Varotsis N., "Solubility measurements of methane + ethane + propane mixtures in aqueous phase with gas hydrates at vapor unsaturated conditions, The Journal of Chemical Thermodynamics, 65 (2013) 100-105
- Gaganis V., Varotsis N., "An improved BIP matrix decomposition method for reduced flash calculations", Fluid Phase Equilibria, 340 (2013) 63-76
- Gaganis V., Marinakis D., Varotsis N., " A general framework of model functions for fast and robust solution of Rachford-Rice type of equations", Fluid Phase Equilibria, 322-323 (2012) 9-18
- Gaganis V., Varotsis N., "A new transformation for the rapid solution of the Rachford-Rice equation in phase split calculations", SPE 150932-PP, Proceedings of the North Africa Technical Conference and Exhibition held in Cairo, Egypt, 20–22 February 2012
- Gaganis V., Varotsis N., "Non-iterative phase stability calculations for process simulation using discriminating functions", Fluid Phase Equilibria, 314(2012), p.69-77
- Hegeman Peter, Dong Chengli, Varotsis Nikos, Gaganis Vassilis, "Application of Artificial Neural Networks to Downhole Fluid Analysis", SPE Reservoir Evaluation & Engineering, February 2009, pp 8-13
- Varotsis N., Marinakis D., Karantzi K., Manoutsoglu E., E.Christidis G., Perdicatsis V., Kotsakis G., Perissoratis C., Ioakim Ch., "Sedimentary and sediment stability studies on the Mud Volcanoes (MVs) of the Anaximander Mountains, Eastern Mediterranean." 3rd Annual meeting of Hotspot Ecosystem Research on the Margins of European Seas (HERMES), Carvoeiro, Portugal, Mar.31– Apr.4, 2008.
- Marinakis D., Varotsis N., "Natural gas hydrates in deep sea sediments: The effect of the host formation on pore pressure and on hydrate characteristics."Geophysical Research Abstracts, Vol. 9, 10268, 2007.
- Marinakis D., Varotsis N., "Hydrates formed from dissolved natural gas in deep marine sediments", 5th International Workshop on Methane Hydrate Research & Development, October 2006, Edinburgh, UK.
- Gaganis V., Varotsis N., Birkett Gr., "Sensitivity controlled Neural Networks for the prediction of PVT Properties exhibit Equation of State like behavior", Proceedings of the 22nd European Symposium on Applied Thermodynamics 28 June-1 July 2006, Elsinore, Denmark
- Marinakis D., Varotsis N., Kostakis G., Christidis G, et. al. "Gas hydrate research overview in Greece", 5th International Workshop on Methane Hydrate Research & Development, October 2006, Edinburgh, UK.
- V. Gaganis, N. Varotsis, J. Nighswander, G. Birkett, "Monitoring PVT Properties Derivatives ensures physically sound tuned EOS behaviour over the entire operating conditions range", SPE 94211, Proceedings of the 14th Europec Biennial Conference, Madrid, Spain, 13-16 June 2005

- J. Yang, M. Llamedo, D. Marinakis, B. Tohidi, N. Varotsis “Successful Applications of a versatile ultrasonic system for gas hydrates in unconsolidated sediments”, Proceedings of the 5th International Conference on Gas Hydrates, Vol 1: Kinetics and Transport Phenomena, June 13-16, 2005, Trondheim, Norway, ISBN 82-519-2065-5
- A.K Stubos, T. Ayrdal, H.P. Hjermstandt, J.A. Stensen, N. Varotsis, P. Adler, J. Muller, O.P. Bjorlykke, S. Puskas “MOREOIL : Evaluation of Miscible Gas Injection in Oil Reservoirs by Monitoring the Asphaltenes Concentration”, Proceedings of the 13th European Symposium on Improved Oil Recovery, Budapest, Hungary 25-27 April, 2005
- Marinakis, D., Varotsis, N., Yang, J., Tohidi, “The effect on the stability of the deep sea sediment, caused by the dissociation of the contained gas hydrate: The case of “Anaximander” mud volcano seabed.” 32nd International Geological Congress, August 2004, Firenze, Italy. Conf. Proceedings Part 2, 282-18, p. 1250
- J. Yang, D. Marinakis, B. Tohidi, N. Varotsis, “Sediment Geomechanical Response to Hydrate Dissociation by Depressurisation: An Experimental Study”, Geophysical Research Abstracts, Vol.6, 07022,2004, European Geosciences Union
- Perissoratis, Ioakim, Zacharaki, Lykousis, Sakellariou, Kormas, Woodside, Amann, Maggiuli, Daehlmann, De Lange, Casas, Gemma, Meyn, Varotsis, Marinakis, “Exploration and Evaluation of the Eastern Mediterranean Gas hydrates and the Associated Deep Biosphere”, EUROCEAN 2004, Galway, Ireland, May 10-13th, 2004, Conference Abstracts. p. 139-140
- D. Marinakis, N. Varotsis, J. Yang, B. Tohidi, C. Perissoratis, “Gas Hydrates in the Eastern Mediterranean seabed : energy potential and technological challenge”, Proceedings of the Advances in Mineral Resources Management and Environmental Geotechnology Conference, Chania, June 2004
- S. Smuk, P. Ross, J. Nighswander, N. Varotsis, “Quantification of oil based mud filtrate in contaminated reservoir fluid samples”, Proceedings of the 5th International Conference on Petroleum Phase Behaviour & Fouling, Banff, Alberta, Canada, June 13-17, 2004
- N. Varotsis, V. Gaganis, J. Nighswander, “Quality Assurance Tool for PVT Simulator Predictions”, SPE Reservoir Evaluation and Engineering Journal, December 2002, pp 499-506
- N. Varotsis, V. Gaganis, J. Nighswander, “Quality assurance tool for PVT simulator predictions” SPE 68235, SPE Middle East Oil Show, Bahrain, 17-20 March 2001
- T. J. Broad, N. Varotsis, N. Pasadakis, “The compositional characterisation of gas condensate fluids-A review featuring the impact of the analysis data quality on the accuracy of equation of state based PVT predictions”. SPE Middle East Oil Show, Bahrain, 17-20 March 2001
- N. Pasadakis, C. Yiokari, N. Varotsis, C. Vayenas, “Characterization of hydrotreating catalysts using the principal components analysis”, Applied Catalysis A: General 207 (2001), 333-341
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- N. Pasadakis, E. Chamilaki, N. Varotsis, “Rapid and accurate determination of the volumetric cuts of Commingled Reservoirs and Pipelines”, *Oil & Gas Journal*, January 3, 1999, pp 46-47
- N. Varotsis, N. Pasadakis, V. Gaganis, “A Novel Approach for the Characterization of Aromatics in Petroleum Fractions Using HPLC-UV-DAD and Evolving Factor Analysis”, *Fuel*, 3032, vol 77, pp 1495-1502, (1998)
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- N. Varotsis, N. Pasadakis, “Quantitative determination of aromatic component groups in lubricant oils using HPLC-SEC and UV-Diode Array Detection”, *Journal of Industrial and Engineering Chemistry Research*, 36, 3915-3919 (1997).
- N. Varotsis, N. Pasadakis, “Quantitative determination of aromatic component groups in lubricant oils using HPLC-SEC and UV-Diode Array Detection”, *Journal of Industrial and Engineering Chemistry Research*, American Chemical Society, 36, pp.3915-3919 (1997)
- N. Varotsis, N. Pasadakis, “An Analytical Method for Rapid Monitoring of the Degree of Hydrogenation of Recycled Lubricating Motor Oils”, 1997, *Journal of Industrial and Engineering Chemistry Research*, 36, 9, 3915-3919
- N. Varotsis, “Prediction of Gas Phase Volumetric Variations in Diphasic Reservoir Oils”, *Journal of Canadian Petroleum Technology*, Sep. 1997, Vol. 36, 8, pp. 56-60.
- N. Varotsis, N. Pasadakis, “Rapid quantitative determination of aromatic groups in lubricant oils using Gel Permeation Chromatography”, *Ind. Eng. Chem, Res.* 1997, 36, 5516-5519
- N. Varotsis, “Modern Trends in Reservoir Fluid Characterisation” key-note contribution to the International Symposium “Enhanced Oil Recovery in Albania” organized by the Directorate General for Energy of the European Commission, Fier Albania, 1997

- D. Avlonitis, N. Varotsis, “Modelling Gas Hydrate Thermodynamic Behaviour: Theoretical Basis and Computational Methods”, *Fluid Phase Equilibria*, 123 (1996) 107-130
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