

CURRICULUM VITAE

1. PERSONAL INFORMATION

Name : Dimitris PAPANTONIS
Place of birth : Piraeus, Greece
Date of birth : 9 February 1951
Nationality : Greek
Family status : Married, 2 children

Address : 2 Mitroou street,
185 37 Piraeus, Greece
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Present Status : Professor of the National Technical University of Athens
Department of Mechanical Engineering
Director of Laboratory of Hydraulic Turbomachines

2. EDUCATION

1963-1969 Secondary studies at Ionidios School of Piraeus, Greece

1969-1974 Mechanical Engineering Diploma, National Technical University of Athens,
Department of Mechanical and Electrical Engineering (June 1974).

1974-1975 Hydraulic Engineering Diploma (Diplome d' Ingenieur de la Section Speciale
d'Hydraulique), E.N.S.E.E.I.H de Toulouse, France (June 1975).

1974-1975 First year doctorate degree: Attestation d' Etudes Approfondies (A.E.A.),
Speciality: Fluid Mechanics E.N.S.E.E.I.H de Toulouse, France (June 1974).

1974-1977 Engineering Doctorate Degree. Speciality: Fluid Mechanics. Institut National
Polytechnique de Toulouse, France (December 1977).

3. SCHOLARSHIPS

1. From the Ministry of National Education from 1969 to 1974.
2. From the French Government from 1974 to 1977.

4. EMPLOYMENT HISTORY

- 1978-1979 Mechanical Engineer in the Engineering Dept. of TEMEK S.A., Athens.
- 1980-1981 Mechanical Engineer in the Engineering Dept. of KONSTAS LTD (Hydraulic and Chemical Engineering Plants), Athens.
- 1981-1987 Lecturer at the Mechanical Engineering Department of the NTUA.
- 1987-1992 Assistant Professor at the Mechanical Engineering Department of NTUA
- 1992-1997 Associate Professor at the Mech. Engineering Department of the NTUA
- 1997- Professor of Mechanical Engineering Department of NTUA
Director of Laboratory of Hydraulic Turbomachines.

5. PARTICIPATION IN THE DESIGN OF SMALL HYDROELECTRIC PLANTS

1. Feasibility study and engineering design study of the micro hydroelectric plants of Mount Athos Monastery of Dionysiou. Installation of 2 multistage centrifugal pumps for the reverse operation as turbines. Installed capacity for the winter period of 68 KW and for the summer period of 20 KW. Installation completed at 1986.
2. Feasibility study and selection of the electromechanical equipment of the micro hydroelectric plant of Mount Athos Monastery of Grigoriou. Two units provided: Installed capacity for the winter period 23 KW and for the summer period 11 KW. Installation completed in 1987.
3. Selection of the electromechanical equipment and design study of the micro demonstration hydroelectric plant at the Community of Apiranthos of Naxos Island. Installed capacity 5 KW. Year 1988.
4. Feasibility and design study of the small hydroelectric plant at Krathis river. Owner: Municipality of Kalavryta. Installed capacity 850 KW. Study completed in May 1991.
5. Feasibility study of the small hydroelectric plant of A. Platanos Community on Krathis river and proposal to THERMIE programme of EEC (1991).
6. Pre-feasibility studies for the small hydroelectric plants of Zakros, Zaros, Mescla and Kalamafka, island of Crete, Prog. VALOREN, 1992.
7. Development of a Stand-Alone PV Power System for Remote Villages Making Use of Pumped Water Energy Storage, Joule II, 1992.

6. POST DOCTORAL EXPERIENCE

1. Visitor researcher at the Laboratory of Hydraulic Turbomachines(IMH) of EPFL (Ecole Polytechnique de Lausanne) and at the Laboratory of Vevey S.A. (turbine factory): July and August 1984. Visit of all main hydroelectric plants of Switzerland Alps.
2. Visitor Maitre de Conferences at the Laboratory of Hydraulic Turbomachines of the University of Grenoble (CREMHyG). Sept.-Dec. 1986. Visit of all main hydroelectric plants of French Alps and hydraulic turbines factories of Neyrpic S.A., Dumont S.A. and Bouvier S.A.
3. Visitor Maitre de Conferences at the Laboratory of Hydraulic Turbomachines of the University of Grenoble (CREMHyG). June-July 1990.

7. LANGUAGES

- Greek : Mother Tongue
- French : Very well
- English : Very well

8. RESEARCH CONTRACTS

1. "Development of micro hydraulic turbine of simple construction". Funded by GGET(General Secretariat of Research and Technology. Duration 2 years (1985-1987). Main contractor
2. "Installation of small Hydroelectric plant at Soulou lake". Funded by E.E.C. Sub-contractor of P.P.C. (Public Power Corporation). Duration one year (1985-1986).
3. "Design and Construction of an experimental small Cross-Flow Hydraulic Turbine".Funded by GGET. Duration 2 years (1987-1989). Main contractor.
4. "Feasibility study for the development of the Know-How for the construction of smallhydroelectric plants in Greece", Funded by GGET. Duration 1 year (1989-1990). Research Associate.
5. "Numerical Prediction of the unsteady flow in a centrifugal pump with spiral casing".Funded by the Greek and French Ministries of Research. Duration 4 years. Main contractor.
6. "Design, construction and experiments on a tube turbine of S type". Funded by GGETand Public Power Corporation.Duration 2 years (1990-1992). Main contractor.

7. "Development of low hemolysis centrifugal blood pump.Numerical Investigation".Funded by the 2nd Surgery Clinic of the University of Vienna nad Ludwig Boltzmann Institut. Duration 3 years (1988-1991). Main contractor.
8. "Design, study and experimental test of small Francis hydraulic using parts of standard centrifugal pumps and by the addition of guided vanes". Funded by GGET and KSB-Hellas Pump Factory. Duration 2 years (1991-1993). Main contractor.
9. "Development of software for the design of centrifugal pumps-experimentalverification". Funded by GGET, Water Public Corporation and Drakos-Polemis S.A. Pump factory. Duration 2 years (1991-1993). Main contractor.
10. "Design, Construction and Experimental Investigation of a Model of S-typeAxial Flow Hydraulic Turbine". Funded by GGET (General Secretariat for Research and Development, 1991, Main contractor.
11. "Feasibility Study for the Hydro-Power Exploitation in Crete (Greece)", CE. Directorate General for Energy (XVII), No of contract: XVII/4/1040/92-22 1992-94. Main contractor.
12. "Design, Construction and Experimental Investigation of a Model of Pelton WaterTurbine. Funded by GGET (General Secretariat for Research and Development, 1993, Main contractor.
13. "Variospeed Hydropower Plants", Joule Project, JOU2-CT94-0043, CE.Dir. Generale XII, 1993-1996, Main contractor.
14. "Regional Integration of Renewable Energies at the Aperathou Village (Island ofNaxos, Greece)", Joule Programme, CE DG XII, 1994-1997, Main contractor.
15. "Action Plan for Optimal Penetration of Renewable Energies in Energy Systems of Islands", Joule Programme, DG XII, 1993-96, Associate contractor.
16. "Energetic Development of Traditional Pumping Windmills of Lasithi (island of Crete, Greece)". Funded by the Organisation for the Development of Lassithi Plateau, 1994. Main contractor.
17. "Hydraulic Model Test of Thissavros Power Plant Trifurcation", Funded by ATBCaldereria and Public Power Corporation", 1995. Main contractor.
18. "Small Hydro-Power Education, Information and Assistance Center", ALTENER PROGRAMME, DG XVII, 1994-1996, Associate contractor.
19. "Design, Construction and Optimisation of a New Runner for an Axial Flow S WaterTurbine", Funded by GGET (General Secretariat for Research and Development, 1996, Main contractor.

20. "Numerical Analysis of Transient Phenomena (Water Hammer) of Metsovitiko Hydropower Plant", Funded by Public Power Corporation, 1996, Main contractor
21. "Numerical Analysis of Transient Phenomena (Water Hammer) of Peykoftyo and Sykia Hydropower Plants", Funded by Public Power Corporation, 1998, Main contractor
22. Numerical simulation of the operation of the pumping system of drinking water from the Mornos channel to Yliki lake", Funded by EYDAP, 2002, Main contractor
23. "Numerical Analysis of Transient Phenomena (Water Hammer) of Ikaria and Sykia, Hydropower Plants", Funded by Public Power Corporation, 2003, Main contractor
24. "Simulation and optimisation of hybrid-hydraulic pump-storage energy recovery system from the energy rejected from wind park", Lasithi. Associated contractor, 2002-2003
25. "Numerical Analysis of Transient Phenomena (Water Hammer) of Water Supply of Kardias power stations from Polyfyto lake- New pipeline and pump station", Funded by Michaniki SA, 2003, Main contractor
26. "Numerical Simulation of Transient Phenomena of the Pumping Station of Combined Cycle Power Plant", Funded by Public Power Corporation, 2003, Main contractor

9. PUBLICATIONS

a) University Course Notes and Books (in Greek)

- A1. Title: "Design and study of the Francis turbine impeller", NTUA, 1987, p. 82
- A2. Title: "Hydraulic turbines, Hydrodynamic transmissions-General equation for the rotating systems", NTUA, 1989, p. 194.
- A3. Title: "Positive Displacement Pumps", NTUA, 1989, p. 84.
- A4. Title: "Design of Hydraulic Turbomachines. Small Hydroelectric Power Plants", NTUA, 1990, p.424.
- A5. Title: "Small Hydroelectric plants, design and selection", NTUA, 1990, p. 140
- A6. Title: "Hydraulic Turbomachines: Pumps, Turbines", Symeon Ed., 1995, 2004 p. 338
- A7. Title: "Measurement Techniques in Fluid Mechanics", Symeon Ed., 1997, p. 303
- A8. Title: "Hydraulic Installations and Hydraulic Transients", Symeon Ed., 1998, p. 382.

b) Scientific Journals

- 1 D. Papantonis, N. Athanassiadis, "A Numerical Procedure for the Generation of Orthogonal Body-Fitted Coordinate Systems with Direct Determination of Grid Points on the Boundary", *Int. Journal for Numerical Methods in Fluids*, Vol.5, pp. 245-255, 1985
- 2 D. Papantonis, N. Athanassiadis, "A Numerical Solution of the Laplace's Equations of Potential Flow, Determining the Values of $\Phi=\text{const.}$ and $\Psi=\text{const.}$ on the Boundaries", *ZAMM, Z.Angew. Math.U.Mech.*,4, pp. 225-227, 1985
- 3 D. Papantonis, G. Bergeles, "A Numerical Solution of the Blade-to-Blade Flow in Turbomachines by the Application of a Transformation on the S1 Stream-Surface", *Acta Mechanica*, 64, pp. 141-153, 1986
- 4 D. Papantonis, A. Zervos, E. Morfiadakis, "Inviscid Incompressible 2-D Flow through Spiral Casing" *ZAMM, Z.Angew. Math.Mech.*, 67, pp. 316-318, 1987
- 5 D. Papantonis, N. Tsopeles, "Numerical Solution of the Turbulent Axisymmetric Flow in the Meridional Channel of a Francis Turbine", *ZAMM, Z. Angew. Math.Mech.*,68, 5, pp. 332-334, 1988
- 6 H. Schima, D. Papantonis, A. Wohlfahrt, G. Wieselthaler, D. Croba, M. Muller, H. Thoma, "In-vitro tests and numerical studies of different impeller designs for centrifugal blood pumps", *Artificial Organs*, Vol. 13, p. 361, 1989
- 7 D. Papantonis, D. Croba, "Numerical Calculations of the Performances and Shear stresses Developed on Centrifugal Blood Pumps", *Artificial Organs*, Vol. 13, p. 490, 1989
- 8 D. Papantonis, "Numerical Evaluation of the Similarity Laws for the Flow between two Rotating Disks", *ZAMM* 70, 5, p. 445-446, 1990
- 9 E. Morfiadakis, S. Voutsinas, D. Papantonis, "Unsteady Flow Calculation in a Radial Flow Centrifugal Pump with Spiral Casing", *Int. J. of Num. Methods in Fluids*, 12, pp. 805-908, 1991
- 10 D. Papantonis, D. Croba, "Periodic Boundary Conditions by an Interpolating Procedure. Application to Radial Flow Impellers", *ZAMM, Z. Angew. Math. Mech.*, is. 4, pp. 352-355, 1992
- 11 H. Schima, M. Muller, D. Papantonis, C. Schlushe, L. Huber, C. Schmidt, W. Trubel, H. Thoma, U. Losert, E. Wolner, "Minimization of Hemolysis in Centrifugal Blood Pumps: Influence of Different Geometris", *The International Journal of Artificial Organs*, Vol. 16, no. 7, pp. 521-529, 1993
- 12 D. Drikakis, P. Govatsos, D. Papantonis, "A Characteristic-Based Method for Incompressible Flows", *Int. J. for Num. Methods in Fluids*, Vol. 17, pp. 667-685, 1994

- 13 D. Papantonis, K. Pothou, "Unsteady Flowfield and Torque Predictions During the Rotation of the Guide Vanes of Hydraulic Turbine", Transactions of the ASME, J. of Fluids Engineering, Vol 117, pp. 468-472, 1995
- 14 D. Papantonis, "The effect of the Reynolds Number and of Specific Speed on the Efficiency of Axial Flow Turbines", ZAMM 77 (1997), S247-S248, 1997
- 15 P. Govatsos, D.Papantonis, "Three Dimensional Study of the Flow in Hydraulic Turbine Draft Tube Based on a Characteristic Method for Incompressible Flow", ZAMM 77 , S1, S191-S192, 1997
- 16 P. A. Govatsos, D. Papantonis, "A Characteristic Based Method for the Calculation of Three-Dimensional Incompressible, Turbulent and Steady Flows in Hydraulic Turbomachines and Installations", Int. J. for Num. Methods in Fluids, 2000, Vol. 34, pp. 1-30, 2000
- 17 D. Manolakos, G. Papadakis, D. Papantonis, S. Kyristsis, "A simulation-optimisation programme for designing hybrid energy systems for supplying electricity and fresh water through desalination to remote areas. Case study: the Merssini village, Donousa island, Aegean Sea, Greece, Energy, Vol. 26, 2001, pp. 679-704.
- 18 D. Manolakos, G. Papadakis, D. Papantonis, S. Kyristsis, "A stand alone photovoltaic power system for remote villages using pumped water energy storage", Energy, Vol. 29, 2004, pp. 57-69.

c) Proceedings of Scientific Conferences

- C1 C. Fonade, D.E. Papantonis, "On the dynamic behaviour of the jet-chamber system in a vortex valve", 2eme Colloque Int. sur la Pneumatique et l' Hydraulique, Gyor (Budapest), Sept. 1978, pp. 325-335.
- C2 D.E. Papantonis, N. Athanassiadis, "Application of the two-equation k- ϵ turbulence model for the 2-D flow around a wing section using a new body-fitted orthogonal system", AMSE-Int. 84 Summer Conference Modelling and Simulation, 1984, pp. 197-212.
- C3 D.E. Papantonis, N. Athanassiadis, "Study for the Selection and Modifications of Centrifugal Pumps for the Inverse Operation as Turbine", 2nd National Conference on Renewable Energies, Salonica, 1985, pp. 553-560.
- C4 D. Papantonis, N. Athanassiadis, "Experimental Study of Coanda Effect", Hydrotechnica, 2nd National Conference of Hydraulic Society, Xanthi, 1985, pp. 111-122.
- C5 D.E. Papantonis, N. Athanassiadis, K. Tziotis, "The numerical generation of curvilinear orthogonal grids with fixed points on the boundaries", Proc. of the Int. Conference Numerical Grid Generation in Computational Fluid Dynamics, Landshut, Eds J. Hauser, C. Taylor, Pineridge Press, 1986, pp. 153-162.

- C6 D.E. Papantonis, N. Athanassiadis, "Numerical solution of the inviscid flow through the runner of the Cross-Flow turbine. Comparison with experimental data", Proc. of the 3rd Int. Computational Methods Conference, Porto Carras, Eds G. Keramidas, C. Brebbia, Springer Verlag, 1986, pp. 199-208.
- C7 D.E. Papantonis, N. Athanassiadis, "Experimental Results from the Inverse Operation of Centrifugal Pumps as Turbines", 3rd National Hydraulic Conference, Salonica, 1987, pp. 507-516
- C8 D.E. Papantonis, N. Athanassiadis, P. Zorlos, "A numerical comparison between the turbulent flow over a typical water turbine blade section with sharp and thick trailing edge", Proc. of the 8th Int. Conference on Fluid Machinery, Budapest, 1987, pp. 560-569.
- C9 D.E. Papantonis, N. Athanassiadis, S. Ganotis, "Design of very small hydroelectric plants. Experience gained from the cases of Mount Athos and of Naxos", First European Symposium on Soft Energy Sources at the Local Level, Naxos, 1988, pp. 433-440.
- C10 D. Papantonis, "Selection of Centrifugal Pump for the Storage and Exploitation of the Energy Produced by a Wind Turbine", 3rd National Conference on Renewable Energies, Salonica, 1988, pp. 743-750.
- C11 M. Panagiotopoulos, D. Papantonis, "Study and Design of Cross-Flow Turbine", 3rd National Conference on Renewable Energies, Salonica, 1988, pp. 751-759.
- C12 D.E. Papantonis, D. Croba, "Numerical calculation of the performances and shear stresses developed on centrifugal blood pump", Proc. of the Int. Workshop on Rotary Blood Pumps, Obertauern (Austria), 1988, pp. 53-59.
- C13 J.L. Kueny, D. Papantonis, "Calcul de l'écoulement dans une volute de pompe centrifuge", XXe Journées d'Hydraulique, Lyon, 1989, pp. I9.1-I9.10.
- C14 D.E. Papantonis, I. Vafias, "Evaluation of the influence of the volumetric losses to the disk friction losses on a centrifugal pump", Πρακτικά Β' Εθνικού Συνεδρίου της Ε.Ε.Θ.Ε.Μ., 1989, pp. 865-874.
- C15 D.E. Papantonis, "Design and test of the impeller of a centrifugal pump in order to achieve the desired transposition of the turbine mode characteristics", 2nd European Symposium on Soft Energy at the Local Level, Chania, 1989, pp. 1-10.
- C16 D.E. Papantonis, M. Panagiotopoulos, K. Loukos, "Laboratory tests of an experimental model of Cross-Flow turbine", 2nd European Symposium on Soft Energy at the Local Level, Chania, 1989, pp. 1-7.
- C17 D.E. Papantonis, A. Tagaris, H. Schima, M. Muller, "Performance and hemolysis of impellers for centrifugal blood pump. Calculation and experiments", Proc. of the 1st Int. Congress on Fluid Handling Systems, Essen, 1990, pp. 83-90.

- C18 D.E. Papantonis, M. Panagiotopoulos, K. Loukos, "Investigation of the flowfield, experimental and numerical, on an experimental model of Cross-Flow turbine", Proc. of the 1st Int. Congress on Fluid Handling Systems, Essen, 1990, pp. 491-498.
- C19 J.L. Kueny, D. Papantonis, D. Croba, "Unsteady flow computation in a centrifugal pump", Proc. of Euromech 272, Response of shear flows to imposed unsteadiness, Aussois, 1991, pp. D1-D5.
- C20 D.E. Papantonis, "Numerical prediction of the shear stresses and mean stay time for radial flow impellers", Proc. of the Int. Workshop on Rotary Blood Pumps, Baden, 1991, pp. 63-69.
- C21 H. Schima, W. Trubel, M. Mueller, D. Papantonis, A. Slat, C. Schlusche, A. Prodingler, F. Spitaler, S. Krausler, U. Losert, H. Thoma, E. Wolner, "Development of a Centrifugal Blood Pump with Minimal Hemolysis", Proc. of the Int. Workshop on rotary Blood Pumps, Baden, pp. 141-147, 1991
- C22 D. Mathioulakis, D. Papantonis, "LDA Flow Field Measurements on a Banki (Cross-Flow) Water Turbine", 5th Int. Conference Laser Anemometry-Advances and Applications, Vol. 2052, pp. 745-752, 1993
- C23 D. Papantonis, G. Andriotis, "Optimisation of the Size and Number of Turbines for a Small Hydropower Plant", Hydroenergia 93, Munchen, pp. III 59-68, 1993
- C24 G. Papadakis, D. Papantonis, S. Kyritsis, "Development of a PV-Hydro Micro Plant for Remote Villages", 12th European Photovoltaic Conference and Exhibition, Amsterdam, Vol. I, pp. 268-271, 1994
- C25 P. Govatsos, D. Papantonis, "A Navier-Stokes Solver for Incompressible Flows Based on the Method of Characteristics", 4th National Congress on Mechanics, Vol. II, pp. 906-915, 1995
- C26 G. Politis, A. Sotiropoulos, D. Papantonis, "Optimum Design of an Axial Flow Pump Using Lifting Line Theory", 4th National Congress on Mechanics, Vol. II, pp. 866-877, 1995
- C27 G. Papadakis, D. Manolakos, D. Papantonis, S. Kyritsis, "A hybrid renewable energy system for supplying electricity and fresh water through desalination to remote areas", Mediterranean Conf. on Renewable Energy Sources for Water Production, Santorini, Greece, 10-12 June 1996.
- C28 Papadakis G., Papantonis D. Manolakos D., Kyritsis S., "The photovoltaic-micro-hydro power plant of Donousa island, Greece", Int. Workshop of Decentralised Rural Energy Sources, Solar, Wind, Geothermal Energy, Freising, Germany, 1997.
- C29 D.Papantonis, "Operation of Small Hydroelectric Power Plants at Variable Speed", 5th National Conference on Solar Applications, Athens, 1996, pp. 89-98.

- C30 D. Papantonis, P. Govatsos, M. Panagiotopoulos, "Technical-Economic Investigation of Hydrodynamic Potential of Crete", 5th National Conference on Solar Applications, Athens, 1996, pp. 99-108.
- C31 J. Poulakos, M. Panagiotopoulos, D. Papantonis, "Laboratory Tests on the Model of Axial Flow S Turbine", 5th National Conference on Solar Applications, Athens, 1996, pp. 109-118.
- C32 D. Manolakos, G. Papadakis, D. Papantonis, S. Kyritsis, "Simulation and Optimisation of Hybrid Systems in order to Cover Energy Needs and Water Desalination", 5th National Conference on Solar Applications, Athens, 1996, pp. 498-507.
- C33 P. Govatsos, D. Papantonis, "Flow Prediction of the 3-D Incompressible Flow in the Trifurcation of a Reversible Hydroelectric Power Plant. Preliminary Experimental Investigation", Eccomas, Computational Fluid Dynamics, Wiley Ed., Athens 1998, pp. 1118-1122.
- C34 D. Papantonis, "Optimisation of the size of small hydroelectric power plants", Workshop on New and Improved Small Hydropower technologies for the Balkan Market, Athens, 1999.
- C35 D. Papantonis, G. Chrysosofakis, "Laboratory performance investigation of Pelton model turbine", Int. Conference AgEnergy '99, Athens, 1999, pp. 415-420.
- C36 D. Papantonis, E. Morfiadakis, "Development of a numerical procedure for the evaluation of the hydroelectric potential of an hydrologic basin", Mediterranean Conference on Policies and Strategies for Desalination and Renewable Energies, Santorini, June 2000.
- C37 D. Papantonis, 'The economic-technical selection of the size of hydraulic turbines in and the degree of water exploitation', RENES, Renewable Energies, Athens, 2001, pp. 182-187.
- C38 D. Papantonis, ' The effect of the capacity of upstream reservoir to the energy production of a small hydroelectric power plant', 7th National Conference on Reneable Energies, Patras, 2002, pp. 127-134.
- C39 D. Papantonis, "Dimensioning of the Pumping Station for the Most Efficient Recovery of the Energy Rejected by Wind Farms", International Conference RES for Island, Tourism and Water, Crete, May 2003
- C40 J. Anagnostopoulos, D. Papantonis, "Oprimum sizing of a pumped-storage plant for the recovery of power rejected by wind farms", Ercoftac Desing Optimization International Conference, Athens, March 2004.
- C41 D.E. Papantonis, J.S. Anagnostopoulos, "Application of evolutionary algorithms for the optimal design of a small hydroelectric power plant", Hydro 2004, Porto, Oct. 2004, pp. 18.2.

d) Technical Publications

- D1 D. Papantonis, "Water Hammer", Technical review INDEX, No 2, 1979, pp. 17-23.
- D2 H. Schima, D.E. Papantonis, A. Wohlfahrt, G. Wiesenthaler, D. Croba, M. Muller, H. Thoma, "In-vitro tests and numerical studies of different impeller designs for centrifugal blood pumps", Artificial Organs, Vol. 13, no 4, 1989, p. 361.
- D3 D.E. Papantonis, D. Croba, "Numerical calculation of the performances and shear stresses developed on centrifugal blood pumps", Artificial Organs, Vol. 13, No 5, 1989, p. 490.
- D4 H. Schima, D.E. Papantonis, M. Muller, C. Schlusche, "Entwicklung von Zentrifugalblutpumpen mit minimaler Hamolyse", Acta Chirurgica Austriaca, 3, 1990, p. 72.
- D5 H. Schima, M. Muller, D.E. Papantonis, A. Salat, C. Schlusche, W. Trubel, U. Losert, H. Thoma, E. Wolner, "Impantierbare Zentrifugalpumpen zur Herzunterstutzung", Forschungsprojekte, 625 Jahre Universitat Wien, 1990, pp. 21-22.
- D6 H. Schima, W. Trubel, M. Muller, D. Papantonis, A. Salat, C. Schlusche, A. Prodingler, F. Spitaler, S. Krausler, U. Losert, H. Thoma, E. Wolner, "Development of a centrifugal blood pump with minimal hemolysis", Proceedings of the Int. Workshop on Rotary Blood Pumps, Baden, 1991, pp. 141-147.
- D7 H. Schima, D.E. Papantonis, M. Muller, W. Trubel, A. Prodigier, L. Huber, S. Krausler, U. Losert, H. Thoma, E. Wolner, "Entwicklung und Validierung von Zentrifugalblutpumpen zur Herzunterstutzung", Aus dem Ludwig Boltzmann Institut fur herzchirurgische Forschung, Wien, 1991, pp. 481-489.

**10. PARTICIPATION TO TECHNICAL STUDIES OF HYDRAULIC PROJECTS
(During the employment to TEMEK S.A. and KONSTAS LTD)**

1. Treatment of waste water of Thermal Power Unit of Megalopolis running to the water stream of Ligataris. Pump station for water with flying ash. Public Power Corporation, 1980.
2. Waste water treatment plant of olive oil refinery at Elefsis. ELAIOURGIKH LTD, 1980.
3. Design and construction of 48" crude oil pipeline between the pumping station of Pachi and the oil tanks of Megara (total length 5000 m). Cathodic protection of the pipeline. Greek Refineries of Aspropyrgos S.A., 1980-1981.
4. Oil pipelines and relative equipment of the new mole of Pireaus Port Authorities at Perama. SHELL Co HELLAS LTD 1980.
5. Study of olive oil refinery at Sparti. Special pump plant and pipelines are included.

- E.G.S. Sparti, 1980.
6. Renovation and extension of the Salt Production unit of Kallonis, Mytilini. Pump stations, pipelines, reservoirs. Ministry of Industry. 1980.
 7. Study and construction of waste water of ducts and pipelines of chemical industry BIOFARM S.A., 1981.
 8. Waste water treatment plant of chemical industry VIOFARM S.A., Aspropyrgos. Pump station, pipelines, reservoirs. Design, study and supervision. VIOFARM S.A., 1981.
 9. Design, study and supervision of the waste water treatment plant of milk and cheese industry DODONI S.A., Ioannina. Pump station, pipelines, electrical installation, tanks. DODONI S.A., Ioannina, 1981.
 10. Renovation of crude oil treatment plant. Installation of new filters, of new electromechanical equipment, pipelines, tanks, thermal isolations. Study, design and supervision. ELBYN S.A., 1982.
 11. Grease factory of Argos. Pipelines, Tanks, thermal isolations. Design and supervision. ELVIGRO S.A., 1982.
 12. Cathodic protection of the water pipeline of cement factory AGET HRAKLHS S.A., at Milaki, Evia, 1982.
 13. Extension of chemical production unit of SHELL CHEMICALS S.A. Pipelines, tanks, special pumps. HERMES AEMEE, Thessaloniki, 1982.
 14. Hydraulic calculations and modifications of the waste water treatment plant of fruit marmalade factory VERMIO-NAOUSSA S.A. Pipelines, pumps, reservoirs. Veroia, 1982.
 15. Study and design of the new booster pump station of the industrial water pipeline at Nea Karvali. Electromechanical equipment. Fertilizer industry of Nea Karvali S.A., 1983.