

SCIENTIFIC PAPERS

1948

1. Thermal Engineering. – Tartu, Scientific Literature Publishers, 1948. 170 p. (in Estonian).
2. About prospects of pulverized combustion of Estonian oil shale // Abstr. Sci. Conf. Tallinn Polytech. Inst. Tallinn, 1948 (in Estonian).

1949

3. Rising of temperature by adding oxygen to combustion air in heating furnaces // Tehnika (Technics). 1949. No. 1. P. 47–48 (in Estonian).
4. About using oil shale as fuel in heating of wrought-iron objects // *Ibid.* 1949. No. 3. P. 11–15.

1950

5. Oil-Shale-Fired Furnace for Heating Wrought-Iron Objects / Estonian Scientific Engineer-Technical Societies. – Tallinn, Estonian State Publishers (ESP), 1950. 15 p. (in Estonian, Summary in Russian).

1953

6. On the Sintering of Fly Ash Deposits on the Heating Surfaces by Utilizing Estonian Oil Shale : Dissertation for the degree of Candidate of Sciences (Ph.D.); Manuscript. Tallinn, 1953. 120 p. (in Estonian).

1954

7. Oil shale: a Popular-Scientific Review about Formation, Mining and Treating of Oil Shale. – Tallinn, ESP, 1954. 191 p. (in Estonian).
Co-authors: A. Aarna, K. Kask, A. Reier.

1955

8. About designing boiler units considering the processes of sintering of oil shale fly ash // Transact. Tallinn Polytech. Inst. Ser. A, No. 64. Tallinn, ESP, 1955. 28 p. (in Russian).

1958

9. Sulfation of fly ash of Estonian oil shales in the atmosphere of SO₂ + air // Transact. Tallinn Polytech. Inst. Ser. A, No. 132. Tallinn, 1958. 19 p. (in Russian, Summary in German).
Co-author: H. Arro.

10. Baltic Power Plant // Tehnika ja Tootmine (Engineering and Production). 1958. No. 6. P. 17–19 (in Estonian).
Co-author: A. Toome.
11. Impact of oil shale quality on reliability and efficiency of power plant operation // Tech. Bull. (Estonian Rep. Scientific-Technical Mining Society). 1958. No. 4. P. 61–64 (in Russian).
Co-author: I. Mikk.
12. Fouling of heating surfaces of boilers fired by shale-kukersite // Power Plants. 1958. No. 2. P. 24–29 (in Russian).
13. About the mechanism of forming hard fly ash deposits on convective heating surfaces (of steam boilers) // Proc. Universities. Power Engineering. 1958. No. 3. P. 58–64 (in Russian).
Co-author: I. Mikk.

1959

14. Thermal resistance of fly ash deposits on tubes under mixed cross-straight flow conditions // *Ibid.* 1959. No. 8. P. 71–74 (in Russian).

1960

15. Calculation of heat transfer of half-radiative platen heating surfaces (of boilers) // *Ibid.* 1960. No. 3. P. 63–70 (in Russian).
Co-authors: I. Mikk, E. Ratnik.

1961

16. The influence of inorganic matter of oil shale on the conditions of boiler operation : Dissertation for the doctor's degree; Manuscript. Tallinn, 1961. 249 p. (in Russian).
17. Choice of thermal scheme and design of high-capacity boilers for combustion of Estonian oil shales considering characteristic properties of the fuel mineral matter // Power-Plant Engineering. 1961. No. 12. P. 5–9 (in Russian).
Co-author: V. Reznik.
18. Distribution of flame radiation intensity along the width of furnace walls // Heat Power Engineering. 1961. No. 12. P. 43–45 (in Russian).
Co-authors: A. Ots, I. Mikk.
19. Solution of some three-dimensional problems of radiative heat transfer by reduction the problems to two-dimensional ones // Engineering-Physic. J. 1961. Vol. 4, No. 6. P. 90–100 (in Russian, Summary in English).
Co-author: I. Mikk.

1962

20. On the coefficient of furnace fouling at combustion of pulverized oil shale // Proc. Universities. Power Engineering. 1962. No. 8. P. 50–55.
Co-author: A. Ots.

1963

21. Problems of entrainment of fuel mineral matter at combustion of Estonian oil shale and using wet ash removal // Transact. Tallinn Polytech. Inst. Ser. A. 1963. No. 205. P. 63–76.
Co-authors: E. Ratnik, H. Taal.
22. Measurement of flame radiation intensity with radiometers of unsteady thermal conditions // Proc. Estonian Acad. Sci. Ser. Phys.-Math. and Tech. Sci. 1963. Vol. 12, No. 1. P. 75–80 (in Russian, Summaries in Estonian and English).
Co-author: A. Ots.
23. Processes in the mineral matter of fuels in furnaces and flues // Theses Sci.-Tech. Conf. on Industrial Power Engineering / Moscow Institute of Power Engineering. 1962. P. 27–28 (in Russian).
Co-authors: H. Arro, H. Taal.
24. A method to research heat transfer in boiler heating surfaces with α -calorimeters // Transact. Tallinn Polytech. Inst. Ser. A. 1963. No. 209. P. 3–11 (in Russian).
Co-authors: A. Ots, V. Reznik.
25. Development of boilers for combustion of pulverized oil shale // *Ibid.* Ser. A. 1963. No. 205. P. 3–15 (in Russian).
Co-author: V. Reznik.
26. Distribution of flame radiation intensity along the height of furnace walls // Heat Power Engineering. 1963. No. 3. P. 51–53.
Co-author: A. Ots.

1964

27. Study of volatilization of oil shale ash components in reducing medium at high temperatures // Proc. Universities. Power Engineering. 1964. No. 6. P. 70–75 (in Russian).
Co-author: H. Taal.
28. Kinetic and diffusion regions of gaseous corrosion of the steels 1x18H9T and X25T in the presence of oil shale ash // Power-Plant Engineering. 1964. No. 10. P. 30–32 (in Russian).
Co-authors: H. Arro, E. Tomann.

1965

29. Fouling and high-temperature corrosion of heating surfaces at burning solid fuels in high-capacity boilers // 20th Sci. Conf. to Celebrate the 25th Anniversary of the Estonian S.S.R. : Theses and summaries / Tallinn Polytech. Inst. 1965. P. 122–123.
30. High-temperature corrosion of steels under the influence of solid fuel fly ash // *Ibid.* P. 125–126.
Co-authors: E. Tomann, H. Arro.
31. Processes of fouling and ash deposition at firing Nazarovo coals // Abstr. 2nd All-Union Conf. on Solid Fuel Combustion. 1965. P. 62–63 (in Russian).
Co-authors: H. Arro, A. Reier.
32. Research of Nazarovo coal fly ash and its deposits on the boiler heating surfaces // Transact. Tallinn Polytech. Inst. Ser. A. 1965. No. 226. P. 3–15.
Co-authors: H. Arro, V. Vallikivi, A. Prikk, E. Ratnik, A. Reier.

1966

33. Impact of temperature and medium on volatilization of potassium compounds from Estonian oil shale ash // *Ibid.* 1966. No. 240. P. 45–53 (in Russian).
Co-authors: H. Taal, A. Mahlapuu.
34. Impact of main factors of dust-laden stream on deposition of dust particles on platen tubes // *Ibid.* Ser. A. 1966. No. 232. P. 65–76 (in Russian).
Co-author: H. Rooraid.
35. Corrosion of the steel 1x18H9T in the air and in the flue gas in the presence of oil shale ash // Power-Plant Engineering. 1966. No. 3. P. 34–35 (in Russian).
Co-author: E. Tomann.
36. Some specific features of fouling of convective heating surfaces (of a boiler) at burning Nazarovo coals and Estonian oil shales // Transact. Tallinn Polytech. Inst. Ser. A. 1966. No. 240. P. 3–13 (in Russian).
Co-authors: H. Arro, V. Vallikivi.
37. The problems of fouling and corrosion of steam generator heating surfaces at burning solid fuels // Proc. Universities. Power Engineering. 1966. No. 6. P. 45–52 (in Russian).

1967

38. Formation of deposit primary layer on superheaters of boilers combustion Estonian oil shales // *Transact. Tallinn Polytech. Inst. Ser. A.* 1967. No. 255. P. 15–26 (in Russian).
Co-authors: H. Arro, V. Vallikivi, H. Tallermo.
39. Recommendations for designing boilers for burning Kansk-Achinsk coals and main tasks of research on transformation processes of coal mineral matter when combusted : Report made at the Conference on Combustion of Kansk-Achinsk Basin Coals. Moscow. 1967. P. 28–29 (in Russian).
Co-authors: H. Arro, V. Reznik, M. Gudkin.
40. The problems of fouling and corrosion of steam generator heating surfaces at combustion of solid fuels // *Proc. Sci.-Tech. Conf. on Rational Combustion of Kansk-Achinsk Brown Coals.* Krasnoyarsk, 1967. P. 174–185 (in Russian).
41. The problems of designing high-capacity steam generator considering the fouling of heating surfaces when burning Kansk-Achinsk coals // *Ibid.* P. 259–282 (in Russian).
Co-authors: V. Reznik, H. Taal, H. Arro, M. Gudkin.
42. Fouling and corrosion of heating surfaces at burning fuels characterized by ashes rich in calcium oxide // *Ibid.* P. 37 (in Russian).
Co-authors: H. Arro, V. Reznik.
43. About the role of chlorides in the processes of fouling and corrosion of heating surfaces at burning Estonian oil shales // *Transact. Acad. Sci. of the Estonian S.S.R. Phys. Math.* 1967. Vol. 16, No. 4. P. 483–488 (in Russian, Summaries in Estonian and German).
Co-author: H. Arro.
44. Estonian oil shales as power-generating fuel // *Utilization of Estonian Oil Shales in Power Engineering.* 1. Tallinn: *Valgus* Publishing House. 1967. P. 3–16 (in Estonian, Summary in Russian).
45. Basic principles of designing oil-shale-fired boilers // *Ibid.* P. 81–95 (in Estonian, Summary in Russian).

1968

46. The problems of power-generating utilization of Kansk-Achinsk Basin coals characterized by high CaO content of ashes // *Proc. 7th World Cong. on Power Engineering.* 1968. 37 p. (in Russian, Summaries in French and English).
Co-authors: V. Kuznetsov, E. Dik, I. Matveyeva, I. Lebedev, A. Polyakov.

47. Current status and problems of burning oil shale at high-capacity power stations in the Soviet Union / United Nations Symposium on the Development and Utilization of Oil Shale Resources. Section 3. Tallinn, 1968 (in Russian).
48. Forum of world power engineers (7th Congress on Power Engineering in Moscow, 20–24 August 1968) // *Tehnika ja Tootmine* (Engineering and Production). 1968. No. 12. P. 636–637 (in Estonian).
49. Wide prospects of oil shale utilization // Newspaper “Rahva Hääl” (Tallinn), 1968, August 15 (in Estonian).
50. The fundamentals of calculation of superheater tube wastage at soot blowing and shot cleaning // *Transact. Tallinn Polytech. Inst. Ser. A.* 1968. No. 265. P. 35–43 (in Russian, Summary in English).
Co-authors: H. Tallermo, E. Tomann.

1969

51. High-temperature corrosion of steels under the influence of solid fuel fly ash // *Combustion of Solid Fuel : Transact. 2nd All-Union Conf. on Combustion of Solid Fuels*, 1965, November 19–23. Novosibirsk, 1969. P. 462–469 (in Russian).
Co-authors: H. Arro, E. Tomann.
52. The processes of fouling and ash deposition at combustion of Nazarovo coals // *Ibid.* P. 470–475 (in Russian).
Co-authors: H. Arro, A. Reier.
53. About the mechanism of formation of calcium-sulfate-bounded ash deposits // *Combustion of Solid Fuel. 3 : Proc. 3rd Conf. Novosibirsk*, 1969. P. 65 (in Russian).
Co-author: H. Arro.
54. About the mechanism of formation of calcium sulfate ash deposits // *Ibid.* P. 191–197 (in Russian).
Co-author: H. Arro.
55. Research on the separator of pulverizing equipment // *Transact. Tallinn Polytech. Inst. Ser. A.* 1969. No. 277. P. 3–16 (in Russian, Summary in English).
Co-authors: A. Prikk, L. Õispuu.
56. About laboratory methods to study thermal resistance of boiler steels in conditions of burning Baltic shales // *Proc. Conf. on the Processes in the Mineral Part of Power-Generating Fuels.* Tallinn, 1969. P. 47–53.
Co-authors: H. Arro, H. Tallermo, E. Tomann.

57. Status and tasks of investigations on solid fuel mineral matter at combustion // *Combustion of Solid Fuel. 3 : Proc. 3rd Conf. Novosibirsk, 1969. P. 1–14 (in Russian).*
58. Einflüsse von Temperatur und Erhitzungsatmosphäre auf die Flüchtigkeit der Kaliumverbindungen in der estnischen Brennschieferasche // *Wissenschaftliche Zeitschrift der Technischen Universität Dresden. 1969. Bd. 18, H. 1. S. 289–292.*
Mitautoren: H. Arro, A. Mahlapuu, H. Taal.
59. Fouling of heating surfaces at burning fuels with high CaO content of ash // *Power-Generating Utilization of the Kansk-Achinsk Basin Coals. Moscow, 1970. P. 81–89 (in Russian).*
Co-authors: H. Arro, V. Reznik.
60. The resistance of some boiler steels to sinter formation at periodical break-down of oxide film on metal // *Proc. 1st Sci.-Tech. Conf. on Heat Exchange and Combustion / Krasnoyarsk Polytech. Inst. Krasnoyarsk, 1970. P. 319–325 (in Russian).*
Co-author: E. Tomann.
61. Current status and problems of burning shales in high-capacity power plants in the U.S.S.R. // *Exploitation and Utilization of Oil Shale Resources. Tallinn, 1970. P. 374–383 (in Russian).*

1971

62. Laboratory study of boiler steel in the presence of oil shale combustion products // *Transact. Tallinn Polytech. Inst. Ser. A. 1971. No. 316. P. 3–19 (in Russian, Summary in English).*
Co-authors: E. Tomann, A. Ots.
63. About possibilities of enrichment of Estonian oil shale in a pulverization system // *Transact. Tallinn Polytech. Inst. Ser. A. 1971. No. 302. P. 3–16 (in Russian, Summary in English).*
Co-author: A. Prikk.
64. About distribution of pulverized oil shale mineral matter between fine fractions of dust // *Proc. Universities. Power Engineering. 1971. No. 9. P. 53–59 (in Russian).*
Co-author: A. Prikk.

1973

65. The problems of rational use of power plant wastages // *Annals of Naturalists' Society at the Estonian Academy of Sciences. 1973. Vol. 62. P. 15–24 (in Estonian, Summaries in Russian and English).*

66. About the regularities of fine grinding of Estonian oil shales in hammer-mills // Proc. All-Union Sci.-Tech. Conf. on Enrichment of Oil Shales. Moscow, 1973. P. 93–97 (in Russian).
Co-authors: L. Õispuu, A. Prikk.
67. Condensation of potassium compounds from products of combustion // Proc. Acad. Sci. of the Estonian S.S.R. Phys. Math. 1973. Vol. 22, No. 4. P. 394–400 (in Russian, Summaries in Estonian and English).
Co-authors: A. Ots, A. Paist.
68. Korrosionbeständigkeit von Überhitzerstählen unter Mitwirkung von Ascheablagerungen // VGB Kraftwerkstechnik, 1973. Bd. 53, H. 8. S. 539–542.

1974

69. Technical progress and environment protection // Eesti Loodus (Estonian Nature). 1974. No. 6. P. 321–325 (in Estonian, Summaries in Russian and English).
70. About behaviour of potassium additives in combustion products // Influence of the Fuel Mineral Part on Working Conditions of Steam Generators : Proc. All-Union Conf. Vol. 1: Transformation of Fuel Inorganic Part in Furnace and Mechanism of Fouling of Heating Surfaces. Tallinn, 1974. P. 133–139.
Co-authors: A. Ots, A. Paist.

1975

71. About separation of oil shale components by four-stage grinding // Proc. Sci.-Tech. Conf. on Getting and Utilization of Low-Ash Concentrates of Baltic Oil Shales. Leningrad, 1975. P. 21–23.
Co-authors: L. Õispuu, A. Ots, A. Prikk, A. Semyonov, S. Ivanov, K. Polferov, R. Rootamm, K. Rajur.

1977

72. About application of the truncated lognormal distribution // Transact. Tallinn Polytech. Inst. 1977. No. 416. P. 51–59 (in Russian, Summary in English).
Co-authors: K. Rajur, L. Õispuu.
73. About separation of oil shale components at their four-stage grinding in the hammer mill // *Ibid.* P. 35–40 (in Russian, Summary in German).
Co-authors: L. Õispuu, A. Ots, A. Prikk, A. Semyonov, S. Ivanov, K. Polferov, N. Chelischev, R. Rootamm, K. Rajur.
74. Problems of power-producing utilization of oil shales // Proc. Universities. Power Engineering. 1977. No. 4. P. 54–61 (in Russian).

75. Approximation of screening tests with lognormal distribution // Transact. Tallinn Polytech. Inst. 1977. No. 416. P. 41–50 (in Russian, Summary in English).
Co-authors: K. Rajur, L. Õispuu.

1978

76. About changeability of oil shale heat of combustion when used for producing power // Transact. Tallinn Polytech. Inst. 1978. No. 458. P. 3–14 (in Russian, Summary in German).
Co-authors: L. Õispuu, H. Sits.
77. Problems of utilization of oil shales, reliability of their supply // Maneuvrability of Fuel Supply. Tallinn, 1978. P. 86–101 (in Russian).
Co-authors: M. Mõtus, T. Polyanskaya, S. Soosaar.

1979

78. Ascheablagerungen, Hochtemperaturkorrosion und Heizflächenverschleiss an Dampferzeugern mit Brennschieferfeuerung // VGB Kraftwerkstechnik. – 1979. Bd. 59, H. 12. S. 977–983.
Mitautor: A. Ots.
79. The impact of temperature of residual oil combustion products on the corrosion resistance of boiler steels // Teploenergetika (Heat Power Engineering), 1979, No. 3. P. 29–33 (in Russian).
Co-authors: A. Ots, J. Raid, R. Randmann, H. Suik, V. Mjakas.
80. Einfluss der Temperatur der Ölverbrennungsprodukte auf die Korrosionsbeständigkeit der Kesselwerkstoffe // Archiv für Energiewirtschaft 1979, H. 8, S. 624–633.
Mitautoren: A. Ots, J. Laid, R. Randmann, H. Suik, V. Mjakas.

1980

81. Preface // Fouling and Corrosion in Steam Generators. – Beograd, 1980. P. 7.
Co-author: D. Savič.

1981

82. Oil Shale of the Baltic Basin: Power Engineering and Thermal Processing. – Golden, 1981. 22 p. (6th NASA Resources Conf. “World Oil-Shale Resources and Their Potential Development”, Colorado School of Mines, Golden, Colorado, U.S.A., June, 15–17, 1981).
Co-author: I. Kaganovich.
83. Problems Involved in Thermal Processing and Utilization of Oil Shales in Power Engineering. – Moscow, 1981. 20 p. (Intern. Symp.

“Role of New and Renewable Sources of Energy in the Solution of Global Energy Problems”).

84. The first in the world: Problems of erecting high-capacity power plants fired with local oil-shale fuel // *Horisont (Horizon)* 1981. No. 4. P. 7–9 (in Estonian).
85. Scientific problems of development of heat-and-power cogeneration complex of the Estonian S.S.R. // *Main Trends in Development of Heat-and-Power Cogeneration Complex in the Estonian S.S.R.* Tallinn, 1981. P. 5–16 (in Russian).
86. Review of the book by A. Andryushenko and A. Popov “Fundamentals of Designing Power and Technological Units of Power Plants” (Moscow, 1980) // *Proc. Universities. Power Engineering.* 1981. No. 3. P. 127–128 (in Russian).
87. Current status and prospects of utilization of oil shales in power engineering // *Proc. Universities. Power Engineering.* 1981. No. 1. P. 40–48 (in Russian).

1982

88. Cheap power from the “useless raw material” (Production of power from Estonian oil shales) // *Science in the U.S.S.R.* 1982. No. 5. P. 112–116 (in Russian).
Co-author: A. Aarna.
89. Scientific problems of development of power engineering in the Estonian S.S.R. // *Proc. Acad. Sci. of the U.S.S.R. Power Engineering and Transportation.* 1982. No. 6. P. 13–18 (in Russian).
Co-authors: L. Vaik, M. Mõtus.
90. Problem of complex utilization of oil shales // *Booklet of the Acad. Sci. of the U.S.S.R.* 1982. No. 12. P. 19–24 (in Russian).
Co-author: K. Rebane.
91. Status of oil shale world resource and major projects of their development // *Proc. Acad. Sci. of the Estonian S.S.R. Geol.* 1982. Vol. 31, No. 2. P. 42–55 (in Russian, Summaries in Estonian and English).
92. Power engineering of Soviet Baltic republics // *Proc. Universities. Power Engineering.* 1982. No. 7. P. 3–6 (in Russian).

1983

93. Economical, technical and social problems in large-scale usage of oil shale with the Estonian Soviet Socialist Republic as an example. – New Delhi, 1983. 19 p. (12th Congress WEC; 2.1 – 108).
Co-authors: V. Dobrokhotov, A. Salamov.

94. Oil shale industry in Australia, its connections with Estonian oil shale industry // *Tehnika ja Tootmine (Engineering and Production)*. 1983. No. 4. P. 36–37 (in Estonian).
95. Major industrial and demonstration retorts for thermal treatment of oil shale // *Proc. Acad. Sci. of the Estonian S.S.R. Chem.* 1983. Vol. 32, No. 2. P. 81–97 (in Russian, Summaries in Estonian and English).
96. Changes in solid fuel reserves and variants of finished cycles of oil shale mining // *Transact. Tallinn Polytech. Inst.* 1983. No. 546. P. 25–43 (in Russian, Summary in English).
Co-authors: L. Õispuu, E. Reinsalu.
97. Erkenntnisstand zur Verschlackungsproblematik von Dampferzeuger-Feuerräumen // *Energietechnik*. 1983. H. 4. S. 126–132.
Mitautor: A. Ots.

1984

98. Utilization of oil shale in the Estonian S.S.R. // *Goryuchie Slantsy (Oil Shale)*. 1984. Vol. 1, No. 1. P. 7–15 (in Russian, Summary in English).
Co-author: A. Aarna.
99. Prospects of using oil shales and bituminous sands: Proc. 12th World Conference on Power Engineering // *Goryuchie Slantsy (Oil Shale)*. 1984. Vol. 1, No. 1. P. 104–106 (in Russian).
100. Recovery of hydrocarbons from oil sands and oil shales by mining // *Goryuchie Slantsy (Oil Shale)*. 1984. Vol. 1, No. 2. P. 199–208 (in Russian).
Co-authors: M. Surguchev, G. Bakhitov, V. Mashin, E. Gurov, V. Tabakov.
101. Recovery of hydrocarbons from oil sands and oil shales by mining // 11th World Petroleum Congr. London, 1983. Baffines Lane, Christester, 1984. P. 373–379.
Co-authors: M. Surguchev, G. Vakhitov, V. Mashin, E. Gurov, V. Tabakov.

1985

102. World's power engineering: the present, past, future // *Aja Pulss (Pulse of Time)*. 1985. No. 21. P. 15–16 (in Estonian).
103. Direct burning of Estonian oil shale at semi-peak-load power plants // *Goryuchie Slantsy (Oil Shale)*. 1985. Vol. 2, No. 1. P. 69–81 (in Russian, Summary in English).

104. Low-temperature combustion of Estonian oil shale: theory, practice, critique // *Goryuchie Slantsy (Oil Shale)*. 1985. Vol. 2, No. 3. P. 289–296 (in Russian, Summary in English).

1986

105. Experience in application of new scientific and technical achievements in oil shale thermal power engineering // Theses of the republ. conf. “Development of Research into Technical Sciences in the Estonian S.S.R.”. Tallinn, 1986. P. 162–166 (in Estonian); P. 176–179 (in Russian).
106. Utilizing local resources // *Power Engineering: Economy, Technics, Ecology*. 1986. No. 2. P. 12–13 (in Russian).
107. Separation of objective classes from ground shales // Influence of fuel mineral matter on working conditions of steam boilers: Theses of the 4th All-Union Conf. Section 1. Tallinn, 1986. Vol. 2. P. 121–125 (in Russian).
- Co-author: L. Õispuu.

1987

108. Problems of risk in introducing achievements of science: on an example of the oil-shale industry // *Goryuchie Slantsy (Oil Shale)*. 1987. Vol. 4, No. 2. P. 113–119 (in Russian, Summary in English).

1988

109. About the prospects of oil shale utilization (13th World Conference on Power Engineering, Oct. 5–11, 1986. Cannes, France) // *Goryuchie Slantsy (Oil Shale)*. 1988. Vol. 5, No. 1. P. 102–103 (in Russian).
110. Über das Risiko bei der Überführung von Forschungsergebnissen in die Praxis und bei einer Masstabsvergrößerung der Anlagen (am Beispiel der Wärmekraftwerksblöcke) // *Blätter der Akad. der Wissenschaften der Est. SSR. Gesellschaftswissenschaft*. 1988. Bd. 37, H. 2. S. 109–117 (Resümeen in Estnisch und Russisch).

1989

111. Ash Utilization after Combustion and Thermal Processing of Low-Grade Fuels. – Helsinki, 1989. 12 p. (Symp. on Low-grade Fuels with Special Emphasis on Environmental Aspects, Helsinki, Finland, June 12–16, 1989. Session 4: Ash Behaviour).
112. Stack emissions of thermal power plant – alkaline or acid? // *Eesti Loodus (Estonian Nature)*. 1989. No. 3. P. 182–184 (in Estonian).

113. Turbulent structure of jet flows of periodical unsteadiness // Turbulent Flows and Experiment Technique. – Tallinn, 1989. P. 9–12 (in Russian).
114. Ash utilization after combustion and thermal processing of Estonian (kukersite) oil shale // Oil Shale. 1989. Vol. 6, No. 3. P. 270–275 (Summary in Russian).

1990

115. General principles of development of Estonian power engineering until 2030 (Report of the research group studying power engineering under the guidance of A. Ots). – Tallinn, 1990. 63 p.
116. Once more about the wind (and some words about the water) // Eesti Loodus (Estonian Nature). 1990. No. 3. P. 197–200 (in Estonian, Summaries in Russian and English).
117. Ash utilization after combustion and thermal processing of low-grade fuels // Low-Grade Fuels, Helsinki, Finland, June 12–16, 1989. – Espoo, 1990. Vol. 2. P. 117–128. (VTT Symposium 108).
118. Über die Verwendung von Brennschiefer und Brennschieferasche beim Klinkerbrennen // Oil Shale. 1990. Vol. 7, No. 3–4. P. 333–342 (Summary in Russian).

1991

119. Thoughts about Estonian conception of power engineering // Energiavarustus ja -sääst (Power Supply and Surplus). 1991. No. 2. P. 1–6 (in Estonian).
120. The equivalent price of Estonian oil shale to the price of coal // *Ibid.* 1991. No. 6. P. 1–3 (in Estonian).
121. Electricity or oil from Estonian oil shale – an old problem // Oil Shale. 1991. Vol. 8, No. 3, P. 281–285 (Summary in Russian).
122. Scaleup risk of developing oil shale processing units // Oil Shale. 1991. Vol. 8, No. 1. P. 67–74 (Summary in Russian).

1992

123. The equivalent price of Estonian oil shale to the price of coal // Oil Shale. 1992. Vol. 9, No. 2. P. 188–192.
124. Nordic-IEFR course in Estonia: solid fuels utilization and environment : Review // Oil Shale. 1992. Vol. 9, No. 3. P. 277–278.
125. Scenarios for shale oil, syncrude and electricity production in Estonia in the interim 1995–2025 // Oil Shale. 1992. Vol. 9, No. 1. P. 81–87.
126. PFBC for the combustion of Estonian oil shale? // Oil Shale. 1992. Vol. 9, No. 4. P. 357–360.

1993

127. Present state of oil-shale-fired power stations and expediency of their reconstruction // Estonian-Finnish Energy Seminar, Sept. 23–24, 1993. *Teknillistieteelliset Akatemiad (Academies of Technology)*. 1993. 4, p. 87–88.

1994

128. Some problems of oil shale retorting in Estonia // *Oil Shale*. 1994. Vol. 11, No. 2. P. 169–178.
129. Students' society "Liivika" and Estonian oil shale industry // *Oil Shale*. 1994. Vol. 11, No. 2. P. 179–183.
130. Development scenarios of producing shale oil // *EMI Teataja (Bull. of Estonian Institute of Economics)*. 1994. Vol. 4, No. 6. P. 3–13 (in Estonian).

1995

131. The Chatham CFB boiler for a wide spectrum of fuels and some problems of Estonian oil shale combustion in CFB systems // *Oil Shale*. 1995. Vol. 12, No. 2. P. 179–184.
132. Oil shale consumption quantities in Estonia, 1994. // *Oil Shale*. 1995. Vol. 12, No. 3. P. 258.
133. An analysis of the RAS "Kiviter" energy balances and development plans // *Oil Shale*. 1995. Vol. 12, No. 3. P. 247–257.
Co-author: V. Yefimov.
134. The 41 MW_e LLB CFB-boiler as model for 200 MW_e oil-shale blocks // *Oil Shale*. 1996. Vol. 13, No. 3. P. 239–245.
Co-author: A. Prikk.

1997

135. Principles of energy strategy for Estonia with taking into consideration the possibilities of collaboration of Baltic States and Poland // *Proc. Conf. on Potential for Cooperation of Poland on Energy Conservation Policy with Baltic Sea Countries*, Nov. 19–20, 1997. Warsaw : Polish Academy of Sciences. *ZESZYTY* 1997. No. 2. P. 21–26.
Co-authors: A. Hamburg, Ü. Rudi.
136. Principles of energy strategy for Estonia // *Energy Strategies in the Baltic States: From Support to Business* // *Proc. World Energy Council. Baltic Regional Forum* Sept. 17–19, 1997. Vol. 1. P. 22–28.
Co-authors: A. Hamburg, Ü. Rudi.
137. Outlines of Estonia's energy strategy // *Energia Teataja (Energy Monthly)*. 1997. No. 7/8. P. 6–8, 35–37 (in Estonian and Russian).

138. Estonia's energy strategy: strategy and tactics, populist statements and economic interests // Estonian Academy of Sciences Year Book 1997. Tallinn, 1998. P. 89–92.
139. Energy strategy for Estonia // Oil Shale. 1997. Vol. 14, No. 3. P. 337–340.
140. Main features of Estonian strategy of power engineering // Energia Teataja (Energy Monthly). 1997. Vol. 21, No. 7/8. P. 6–8 (in Russian).

1998

141. Prospects of Estonian oil shale energy // Energia Teataja (Energy Monthly). 1998. No. 3. P. 9–11, 35–38 (in Estonian and Russian).
142. Estonian strategy of power engineering. Strategy and tactics, populism and economical interests // Year Book of the Estonian Academy of Sciences III. Tallinn, 1998. P. 89–92.
143. Future outlook of the Estonian oil shale and power industry // Oil Shale. 1998. Vol. 15, No. 2 SPECIAL. P. 184–185.
144. Future of the Estonian oil shale energy sector // Oil Shale. 1998. Vol. 15, No. 3. P. 295–301.

1999

145. Black scenario of oil shale power generating in Estonia // Oil Shale. 1999. Vol. 16, No. 3. P. 193–196.
146. Oil shale producing 1999 // Estonian Energetics 1999. Tallinn, 2000. P. 40–46 (in Estonian and English).

2001

147. Current status of oil shale processing in solid heat carrier UTT (Galoter) retorts in Estonia // Oil Shale. 2001. Vol. 18, No. 2. P. 99–108.
Co-authors: N. Golubev, A. Kaidalov, J. Kann, A. Elenurm.
148. I. Öpik participated in compiling the following Year Books:
Estonian Energy 1992. Year Book of the State Energy Department.
Estonian Energy 1994-1996, Ministry of Economic Affairs. Tallinn 1997.
Estonian Energy 1997, Ministry of Economic Affairs. Tallinn 1998.
Estonian Energy 1998, Ministry of Economic Affairs. Tallinn 1999.

**Presentation of “Life History and Memoirs of a Professor *emeritus*”
at the Thermal Engineering Department of TTU, April 2000**



Arvi Prikk and author Ilmar Öpik

A. Poobus accepting
the book



From left: A. Poobus, T. Pihu, H. Arro, V. Selg, T. Tiikma, Ü. Kask, J. Laid,
M. Nuutre, Agu Ots, K. Ingermann, A. Jegorov, T. Lausmaa