"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

Zajic, V.

Types of effective high-voltage and ultra high-voltage circuit breakers. p. 204.

Vol. 43, no. 4, Apr. 1954.
ELEKTROTECHNICKY OBZOR

SO: Monthly List of East European Accession, (EEAL), LC, Vol. 4, No. 9, Sept. 1955, Uncl.

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

ZAJIC,V.

Experimental laboratory for high-tension currents, the department for shorted circuits in Bechovice. p.108. (Nova Technika, Vol.2, no.4, Apr. 1957) Praha

SO: Monthly List of East European Accession (EEAL) LC, Vol.6, no.7, July 1957. Uncl.

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

ZAJIC, J.

Technological evaluation of potatoes used for manufacturing in the potato industry. p.126. (Prumysl Potravin. Praha. Vol. 8, no. 3, 1957.)

SO: Monthly List of East European Accessions (EEAL) LC., Vol. 6, no. 7, July 1957. Uncl.

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

ZAJIC, V.

High-voltage contractors for heavy industrial application.

p. 353 (ELEKTROTECHNIK) Vol. 12, no. 11, Nov. 1957,
Praha, Czechoslovakia

SO: Monthly Index of East European Accessions (EEAI) LC, Vol. 7, No. 3,
March 1958

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

22362
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A201/A126

21.1920

AUTHOR: Zajíc, Vladimír

TITLE: The influence of the surface temperature increase of a fuel element on the efficiency of the thermal cycle of a nuclear power plant

PERIODICAL: Jaderná energie, no. 1, 1961, 10 - 12

TEXT: The article is a discussion contribution to several papers which were previously published in this journal. The author contributes some more accurate data and points out some other factors which may influence the thermal-cycle efficiency of a nuclear power plant. V. Rýpar (Ref. 1: Význam zvýšení povrchové teploty palivového článku. Jaderná energie 6, (1960), č. 3, str. 100; Ref. 2: Korozní problematika energetických reaktorů chlazených kysličníkem uhličitým. Jaderná energie 6 (1960), č. 6, str. 192) dealt with the potentialities of increased fuel-element surface temperature in improving the thermal-cycle efficiency of nuclear power plants. His conclusions, however, might be interpreted to the effect that a comparatively slight increase of 50°C in the fuel-element surface temperature can lead to a relative increase of 30% of the thermal efficiency of

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The influence of the surface temperature ...

the working cycle, which is not true. For an initial steam temperature of 673°K (=400°C), which is provided in the design of the first Czechoslovak nuclear power plant, an increase of 50°C would produce-even in case of an optimum Carnot cycle - a relative efficiency increase of 5.6% only. An increase of the coolant-gas inlet temperature from 400 to 450°C would produce a relative improvement of the thermal efficiency of about 7.5%. In case of an increase of this temperature to 500°C, the thermal efficiency would increase by about 14%. It will also be noted that a specific increase of the maximum fuel-element surface temperature does not result in the same increase of the gas-coolant temperature at the reactor outlet, if the coolant inlet temperature remains the same. For the design parameters of the Czechoslovak nuclear power plant (maximum fuel-element surface temperature = 500°C; gas-coolant inlet temperature = 95°C; gas-coolant outlet temperature = 425°C) an increase of the fuel-element surface temperature by 50°C would result in an increase of the coolant outlet temperature by 40.7°C and a relative increase of the thermal efficiency by about 6%, thus increasing the original-design thermal efficiency from 25% to 26.5%. There is, however, a number of other factors which may contribute towards increasing the thermal efficiency of a nuclear power plant, such as: higher coolant temperature at the reactor inlet; transition from a single-pressure steam cycle to a two- or three-pressure cycle; higher steam pressure; introduction of steam reheating; regenerative heating of feed water by steam ex-

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The influence of the surface temperature ...

tracted from the turbine; intensification of the heat transfer from the fuel elements to the coolant in the reactor, and from the coolant to the steam in the heat exchanger; output flattening throughout the active region of the reactor. For the design parameters of the Czechoslovak nuclear power plant (29 atmospheres, 400°C), the transition to the two-pressure steam cycle (70 and 12 atmospheres) with steam reheat to 405°C, feed-water heating to 105°C, and increase of the coolant inlet temperature from 95 to 175°C with the outlet temperature unchanged (425°C), would raise the thermal-cycle efficiency from 25 to 33%, which is a relative efficiency increase of 31.5%. In conclusion it can be stated that although a raised fuel-element surface temperature undoubtedly exerts a significant and favorable influence on the efficiency of a nuclear power plant, especially since it leads to the improvement of the thermal-cycle efficiency independently of all other factors; there are also other, more effective and still unused ways and means of obtaining the same results. There are 2 figures, 1 table and 6 references: 5 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: S.McLain: Reactor engineering lectures. Chicago; ANL - 5424, 1955.

ASSOCIATION: Ústav jaderného výzkumu ČSAV (Institute of Nuclear Research, ČSAV), Prague

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

ZAJIC, V., inz. (Czechoslovak Socialist Republic)

Switching off of small lagging currents by the high-voltage current braker. Przegl elektrotechn 38 no.3:85-91 Mr '62.

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

ZAJIC, V., prof. inz.

Three new publications of the International Electrotechnical Commission from the field of high-voltage circuit breakers.
El tech obzor 53 no. 6:349-351 Je '64.

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

EWT(1)/EWF(m)/ETC(f)/EPF(n)-2/EWG(m)/EWA(d)/ETC(m)-6/EWI(1) WW

AUTHOR: [illegible]

[illegible] Jaderneho vyzkumu [illegible]

TITLE: Heat transfer in the region of onset of surface boiling during the forced flow of water in a tube

SOURCE: Jaderna energie, no. 4, 1965, 144

TOPIC TAGS: heat transfer, boiling, water, cooling

ABSTRACT: INR Report No. 1126/64, published in Jaderna Energie only as Czech and Russian summaries (modified): The article describes the methods and gives the results of measurements of heat transfer on the inner surface of a tube at high heat fluxes (up to 1,300,000 kcal/(m^2)(hr) before the onset of boiling of the cooling water and in the presence of it on the cooled wall of the tube. The parameters of the heat transfer agent (a temperature of 10 to 80°C, a pressure of approximately 1 atm, and a velocity of [illegible] to 5 m/sec) corresponded to an Re number range of 5,000 to 100,000, an Nu number range of [illegible] and an Pr number range of 2 to 10. [JPRS]

SUB CODE: 20, 13 / SUBM DATE: none

UDC: 621.039.536.4: 536.2

Card 1/1

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

L 20592-66 EPF(n)-2/EWP(t) IJP(c) ES/JD/WW/JG

ACC NR: [illegible] SOURCE CODE: CZ/0038/66/000/001/0003/0007

AUTHOR: Zajic, Vladimir; Vlcek, Jiri; Rudecek, Milan

[illegible] Institute for Nuclear Research, CSAV, Rez (Ustav jaderneho vyzkumu [illegible] Skoda Specialized Enterprise, Pizen

(Skoda, oborovy podnik Plzen, zavod Jaderne elektrarny)

TITLE: Detection of uranium fuel element failures during inactive tests in CO sub 2 streams

SOURCE: Jaderna energie, no. 1, 1966, 3-7

TOPIC TAGS: uranium, reactor fuel element, aerosol, radiometry

ABSTRACT: A radiometric method of the detection of uranium released in an inactive test loop by rod-type fuel element is described. In comparison with some chemical methods of analysis, the radiometric method for detection of uranium aerosols in the test loop is simple and sensitive. The paper was presented by [illegible] Simek. Orig. art. has: 6 figures and 16 formulas. [NA]

SUB CODE: 18 / SUBM DATE: none / OTH REF: 003 / SOV REF: 004

Card 1/1 BK

UDC: 621.039.543.45: 621.039.548.8

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

L 8822-66 EWT(m)/ETC/EPF(n)-2/EWG(m) WW SOURCE CODE: CZ/0038/65/011/010/0369/0372

ACC NR: AP6001530

30
B

AUTHOR: Zajic, Vladimir—Zaits, V.

ORG: Institute of Nuclear Research, CSAV, Rez (Ustav jaderneho vyzkumu CSAV)

TITLE: Contribution to cooling intensification at high heat fluxes using a ragged heat exchange surface

SOURCE: Jaderna energie, v. 11, no. 10, 1965, 369-372

TOPIC TAGS: nuclear reactor, nuclear reactor technology, reactor fuel element

ABSTRACT: Fuel element cooling problems and the analysis of possibilities of power increases in the WWR-S reactor initiated an experimental investigation of heat transfer for intensification at a high heat flux using a roughened cooled surface. The work was presented by J. Stursa. Orig. art. has: 6 figures, 4 formulas, 1 table. [NA]

SUB CODE: 20 / SUBM DATE: none / ORIG REF: 006 / OTH REF: 002 / SOV REF: 003

UDC: 621.039.534.23:621.039.54-42

BVK
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APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

ZAJIC, Vladimir, d-. ins.

Heat transfer in the region of surface boiling of flowing water in a tube. Stroj cas 16 no.3:285-301 '65.

1. Institute of Nuclear Research of the Czechoslovak Academy of Sciences, Rez. Submitted July 16, 1964.

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

ZAJIC, V., prof.

Optimum conditions in alternating-current arc switching in low voltage. El tech obzor 53 no.10:567-568 O '64.

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

ZAJIC, V.

Conference on the heat and substance transfer in Minsk.
Jaderna energie 10 no.10:389,390 O '64.

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

ZAJIC, Vl., inz.

Jean Tribot Laspiere; obituary. El tech obzor 53 no. 2:118 F '64.

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

ZAJIC, Vladimir

Consequences of the asymmetry in cooling the fuel elements of the WWR-S reactor. Jaderna energie 10 no. 3:71-76 Mr '64.

1. Nuclear Research Institute, Czechoslovak Academy of Sciences, Rez.

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

SCHULTZE, H., prof. dr. inz. (Dresden); ZAJIC, V., inz.

Remarks on the review of the book "Technology of alternating current high-voltage circuit breaker." El tech obzor 53 no.4:224-226 Ap '64.

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

ZAJIC, V., inz.

International conference on synthetic testing methods of extra high-voltage circuit breakers. El tech obzor 52 no.10:565 O '63.

1. Statni vyzkumny ustav silnoproude elektrotechniky.

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

ACCESSION NR: AP4019091

Z/0038/64/000/003/0071/0076

AUTHOR: Zajic, Vladimir (Zayits, V.)

TITLE: Effects of cooling assymetry of VVR-S reactor fuel elements

SOURCE: Jaderna energie, no. 3, 1964, 71-76

TOPIC TAGS: reactor, reactor fuel element, VVR-S reactor, VVR-S reactor fuel element, water-modulated water-cooled reactor, reactor fuel element cooling, assymetry

ABSTRACT: The Institute of Nuclear Research at Rez carried out a detailed examination of the effect of the geometric arrangement of the fuel elements in the VVR-S reactor's fuel core upon its cooling regime. Purpose of study was an attempt to increase reactor's output. The fuel core in this reactor can contain 52 working sections of 16 fuel elements each. Cooling of these fuel elements is not symmetrical. Analysis of the fuel elements showed that their spacing in the working sections has a very decided effect upon the progress of cooling and shape of the fuel core during the reactor's operation. Authors also found that nonuniform cooling will also cause a deformation in the fuel element. Surface

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ACCESSION NR: AP4019091

boiling of the cooling water will stabilize the progress of deformation, for the surface boiling effect greatly improves the cooling process and reduces the originating temperature differences. The fact that some of the aluminum-coated fuel elements which were used in the tests were probably cooled for a long time by surface boiling without being damaged by the frequently repeated distortions in the reactor power level attests to their excellent resistive capabilities and leads to the conclusion that a fuel element of this type is much more efficient than has been heretofore determined. The presumed safety of cooling the fuel core by surface water boiling calls attention to the possibility of its being applied for a predesigned intensification of reactor cooling while raising its power level at the same time. Orig. art. has: 10 figures and 32 equations.

ASSOCIATION: Ustav Jadernoho vyskumu CSAV, Rez (Institute of nuclear research)

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

ZAJIC, Vladimir

Some problems in increasing the output of the VVR-S reactor. Jaderna energie 9 no.6:200 Je '63.

1. Ustav jaderneho vyzkumu, Ceskoslovenska akademie ved, Rez u Prahy.

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

ZAJIC, Vladimir

Examination of the hydrodynamic and thermal characteristics of the VVR-S nuclear reactor. Jaderna energie 9 no.11: 347-352 '63.

1. Istav jaderneho vyzkumu, Ceskoslovenska akademie ved, Rez.

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

ZAJIC, V., inzh.; PANEK, J., inz., C.Sc.; GERT, R., inz., C.Sc.; JIRKU, J., inz., C.Sc.

Switching of large shunt capacitor banks for reactive power compensation. Bul EGU no.5/6:1-10 '62.

1. Statni vyzkumny ustav silnoproude elektrotechniky, Bechovice (for Zajic and Panek) 2. Vyzkumny ustav energeticky, Brno (for Gert and Jirku).

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

BERVAR, Marjan, sanitetski pukovnik, dr.; SUDAROV, Zivojin, sanitetski pukovnik, docent, dr.; ZAJIC, Zivorad, sanitetski potpukovnik, dr.

Organization of the collection of mass casualties during first critical hours after a disaster. Vojnosanit. pregl. 21 no.11: 695-702 N '64

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

ZAJIC, Zivorad, sanitetski potpukovnik dr.; DUNJIC, Slobodan, sanitetski pukovnik dr.

Fractures of the patella. Vojnosanit. pregl. 22 no.12:766-774 D '65.

1. Vojnomedicinska akademija u Beogradu, Klinika za hirurske bolesti.

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

CURCIC, Milovan, sanitetski pukovnik prof. dr.; ZAJIC, Zivorad, sanitetski potpukovnik dr

Biliary ileus. (Case report). Vojnosanit. pregl. 19 no.9:636-638 S '62.

1. Vojnomedicinska Akademija u Beogradu, Radioloski institut, Klinika za hirurske bolesti.
(INTESTINAL OBSTRUCTION) (CHOLELITHIASIS)

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

ZAJIC, V., inz.

Experimental laboratory for high-tension currents, the department for short circuits in Bechovice. Nova technika 2 no.4:108-109 Ap '57.

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

ZAJIC, V., dr.

Electric liquid level indicator. Jemna mech opt 6 no.2:45 F '61.

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

ZAJIC, Vladimir

Specific heat and thermal conductivity of powdered uranium oxide U_3O_8. Jaderna energie 6 no.6:200-201 Je '60.

1. Ustav jaderneho vyzkumu, Ceskoslovenska akademie ved, Praha.

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

ZAJIC, V.

Driving of turbines of nuclear plants with boiling-column reactors. Jaderna energie 6 no.6:209 Je '60.

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

ZAJIC, V.

A new control device for nuclear reactors. Jaderna energie 6 no.6:215 Je '60.

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

S/26/62/000/019/002/006
I007/I207

AUTHOR: Zajic Vladimir

TITLE: Method of transforming circular into rectilinear motion

PERIODICAL: Referativny zhurnal, otdel'nyy vypusk. 42. Silovyye ustanovishi, no.19, 1962, 30, abstract 42I9263 (Czech patent, class 47 h, 1, no. 97833, December 15, 1960)

TEXT: A mechanism is proposed to be used in regulators, automatic devices, etc. In the mechanism, the linear displacement of a rod between its guides is proportional (with an accuracy of about 0.8%) to the rotation angle of another rod within the limits of $\pm 90^{\circ}$. The mechanism is reversible. There is 1 figure.

[Abstractor's note: Complete translation.]

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

ZAJIC, Vl., dr., inz.

Electric level feeler. Jemna mech opt 5 no.12:383-385 D '60.

1. Ceskoslovenska akademie ved, Praha.

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

41389

Z/032/62/012/010/002/002
E160/E435

26.4110

AUTHORS: Peprný, J., Engineer, Zajíc, V., Engineer Doctor

TITLE: Mechanized wind tunnel for testing blade cascades

PERIODICAL: Strojírenství, v.12, no.10, 1962, 774-780

TEXT: The authors describe an experimental wind tunnel where the running parameters, such as air temperature, velocity of air flow, velocity and static heads before the cascade, velocity and static heads as well as direction of air flow after the cascade, are automatically controlled. Relevant readings monitored are evaluated by special analog computers containing mainly mechanical elements. For air temperature control the tunnel is provided with a heater of 10 kW output supplied by a d.c. generator which is switched on and off through a relay, actuated by a thermostat. The temperature is maintained within ± 0.1°C. Air velocity is regulated with the help of a blow-off valve operated by a servomotor, itself actuated through an electronic circuit by a micro-manometer in which the regulated pressure is balanced against the atmosphere. A needle contact with one of the surfaces in the micro-manometer brings the servomotor into operation. Velocity

Card 1/3

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Mechanized wind tunnel ... Z/032/62/012/010/002/002
E160/E435

is maintained at a constant value within ± 0.25%. Three-hole probes are used for monitoring velocity and static heads before and after the cascade. The upstream probe is fixed, whilst the downstream one is automatically placed, with the help of a servomotor and a special micro-manometer equipped with contacts, so that the middle hole faces exactly the direction of flow. Readings are fed into three analog computers which give: static pressure behind the cascade to enable correct positioning of the plane of traverse to be effected, mean velocity head and outlet angle as well as recording individual values across the traverse and, finally, the aerodynamic force on the blade. Static pressure behind the cascade can be continuously checked on a bank of manometers consisting of three U-tubes. Static pressure is derived from a difference of total and velocity heads. The bore of the two manometer tubes involved and densities of liquids they contain are arranged so that direct reading of static head can be obtained by a simple operation of a curser. The third tube is used to check that the probe faces the stream. A detailed description is given of the computer for integrating velocity head

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

Mechanized wind tunnel ... Z/032/62/012/010/002/002
E160/E435

readings in preparation for the calculation of the mean value of the velocity head. The operation of the computer is each time initiated from a control panel by simply pressing a switch. Though certain arithmetic operations still have to be done manually, it is estimated that this represents only 10% of the total work. A description is also given of the computer for the evaluation of total aerodynamic force on the blade which saves laborious manual calculations and recording. The tunnel accommodates blades 15.75 inches long, with a depth of profile 2 to 4 inches; maximum air flow is 5720 cubic feet /min at room temperature and at a maximum air velocity of 183 feet/sec. There are 12 figures.

ASSOCIATIONS: LZ, Plzeň (J. Peprný)
ČSAV, Prague (V. Zajíc)

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

S/194/62/000/004/001/105
D222/D309

AUTHOR: Zajic, Vladimir

TITLE: Analog device for modelling aerodynamic forces (patent)

PERIODICAL: Referativnyy zhurnal, Avtomatika i radioelektronika, no. 4, 1962, abstract 4-1-33a (Chekhosl. pat., kl. 42k, 4, no. 97419, 15.11.60)

TEXT: An analog device is patented for the modelling of the aerodynamic forces arising due to the air flow around an investigated object, which is characterized by simplicity, satisfactory accuracy and by the fact that there is no need for graphical or grapho-analytical processing of the results. The essence of the device is in the use of a liquid pressure gauge (see Fig. 1, 2), containing two groups of tubes which can rotate to any angle around the axis 7. The number of tubes in each group can reach 15. The internal diameter of the tubes is 6 mm (some of the tubes have a diameter of 3, 4 and 5 mm). The tubes marked 1 are filled by some liquid 6

Card 1/3

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Analog device for ...

(H_2O, C_2H_5OH, Hg, etc.), whose parameters determine the limits of measurements. The positions of the tubes are fixed by the supports 4 which rotate around the axis 8. The lower ends of the tubes are connected via the rubber tubes 2 to the container 3 and to the measuring tube 5. The upper ends of the tubes 1 are joined to the probes a, b, c, d and e, which are attached to the investigated profile 10. The pressure P_i arising in the probes is transmitted to the liquid in tubes 1 rotated with respect to the vertical through an angle φ_i, corresponding to the angle between the normal to the profile and the axis z. The resulting value of the measured aerodynamic forces can be obtained by reading the head 9 of liquid in the measuring tube 6. Formulas are given for the calculation of the aerodynamic forces. A second group of tubes, joined to probes g, h, i, j and k, is connected to a second measuring tube in the same way. The total value of the measured aerodynamic forces can be obtained as the difference of the readings from the two measuring tubes. Measurements can be carried out by the compensation method by applying a pressure p_s at the upper end of the measuring tubes.

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Analog device for ...

3 figures. [Abstracter's note: Complete translation.]

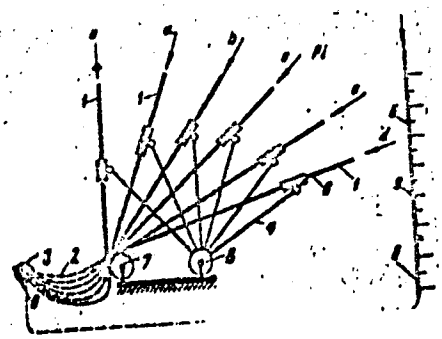

Fig. 1

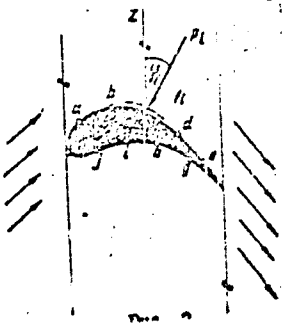

Fig. 2

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ZAJIC, Vladimir

Development of homogeneous reactors and the experience with the Czechoslovak Project. Jaderna energie 7 no.9:296-300 S '61.

1. Ustav jaderneho vyzkumu, Ceskoslovenska akademie ved.

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

BR

S/261/62/000/010/001/001
1007/1207

Authors: Zajic, Vladimir

Title: AUTOMATIC SIMULATING (MODELLING) DEVICE FOR IMPELLER-TYPE (VANE) PUMPS (Abstractor's note: incomplete translation of the original Czech title)

Periodical: *Referativnyy zhurnal, Mashinostroyeniye*, no. 10, 1962, 17, abstract 34.10.132P (Czech. patent, class 42 m, 14, no. 91679, 15.09.59)

Text: No abstract

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D257/D305

21.1000

AUTHOR: Zajíc, Vladimír

TITLE: The state development of homogenous reactors and experience with a Czechoslovak project

PERIODICAL: Jaderná energie, no. 9, 1961, 296 - 300

TEXT: In 1956-1959 the Ústav jaderného výzkumu ČSAV (Institute of Nuclear Research. Czechoslovak AS) studied the problem of homogenous reactors for power production. When it was found that technical difficulties connected with the development of a safe homogenous power reactor would require many more years of research and development, the project was abandoned. The paper presents a brief review of the results obtained from the study and lists the bibliographic references in which these results have been dealt with in detail. The research project considered two types of homogenous reactors: (1) A small (active zone about 500 liters, output 10 - 20000 kw(th)) system using medium-enriched (uo to 20% U-235) fuel without reflector and light water as moderator, to be used in portable packaged power stations;

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The state of development ...

(2) A larger system using slightly enriched (about 1% U-235 or Pu-239) fuel and heavy water as moderator which would be capable of several years' operation when refueled with natural uranium (in the form of oxide) only. The study produced the following results: (1) It was determined that a heavy-water moderated power reactor of a sufficient large size (about 20 cm^3) with slightly enriched (1% U-235) natural uranium as initial fuel could be operated continuously as satisfactory parameters (250° C) using recycled plutonium and natural uranium for refueling, and thus attaining a fuel burnup of 3000 - 10000 mwd / ton. (2) The cylindrical reactor pressure vessel (120 atm) for the smaller type (diameter 750 mm, height 1800 mm, weight 2,500kg) could be produced from 13123,1 high - strength carbon steel plate (60 mm thick) with a continuously welded-on stainless-steel lining (8 mm thick). The piping could be produced of AKVexS stainless - steel (0.1% C, 18% Cr, 10% Ni, 2% Mo, 0.5% Ti, 69.4% Fe). (3) Several original concepts of the active zone and other parts of the primary circuit were suggested. Also, original methods of fuel recycling, dosing and storing, as well as a system of recombination of radiolytical gases, permitting utilization of the released heat for power production, were

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worked out. (4) It was found that a reliable pump with high operating parameters (300° C, 120 atm) could not be produced in the CSR due to the lack of adequate insulation material for the driving electromotor. On the other hand, if natural circulation were used the reaction would yield only 20 - 30% of the specific output and, in addition, the hazard of sedimentation of the solid phase of the suspension would increase. Forced circulation by means of pressurized gas was found impractical for this reactor type. (5) Granulometric studies of the fuel (U_3O_8) particles revealed that a size spectrum of about 8 microns would have to be maintained during the entire operating time. The production process of such fine particles is connected with great technical difficulties and has to be performed at temperatures considerably exceeding 1000° C. Also, the separation of fission products from the fuel suspension was found difficult and expensive so that it was concluded that the development of adequate and economical fuel processing would require several years of work. (6) Safety studies revealed that at full capacity a 10 Mw(th) reactor under consideration would produce fission products with a total activity of 1 million curie daily. Since maintenance and repair by current technical means would be impossible, it would be mandatory that the reactor operate trouble-free for a number of years. This, however, is an ex-

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tremly severe requirement which is utterly new in the field of power production. The above results have led to the following conclusions: Although homogenous reactors with their easy fuel reparation, simple arrangement of the active zone, fuel breeding, and continuous fuel recycling offer great advantages, these cannot be utilized until a reliable, trouble-free, long-term operation of these reactions is secured. At the present time, only low-power homogenous reactors for experimental work, operating at a low parameters (pressure, temperature, flow rate of fuel suspension) of the primary circuit can be considered reliable. Their use for power production would involve a great quantitative leap which would require great efforts and large financial means to accomplish. Appreciation is extended to Engineers V. Stach and P. Novotný. There are 61 references : 52 Soviet-bloc and 9 non-Soviet-bloc. The four most recent references to English-language publications read as follows: J.A. Lane, H.C. McPherson, F. Maslan, Fluid Fuel Reactors, Addison-Wesley Co, Reading, Mass., USA, 1958; K.Cohen, E. Zebroski, Operation Sunrise, Nucleonics 17, 1959, 3, 63; S.E. Beal et al., The Homogenous Reactor Experiment No 2, Ref. P/449: Geneva 1958; Atomic Review, Engineering, 1959, no. 4886, 606, Jaderná energie 6, 1960, 5, 169. (Tech-

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The state of development ...

nical Editor: J. Beránek)

ASSOCIATION: Ústav jaderného výzkumu ČSAV (Institute of Nuclear Research, Czechoslovak AS)

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26.1130 26.1310

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A201/A026

AUTHOR: Zajíc, Vladimír

TITLE: Specific Heat and Thermal Conductivity of Powderized Uranium Oxide U_3O_8

PERIODICAL: Jaderná energie, 1960, No. 6, pp. 200 - 201

TEXT: In conjunction with a project of a homogeneous circulation reactor with U_3O_8 suspension in light water (Ref. 1), the specific heat and thermal conductivity of powderized U_3O_8 were experimentally investigated. A modified calorimetric method (Ref 3) was developed for this purpose, which yields more reliable results than the Woestyn method (Ref. 2). A specimen of powderized U_3O_8 of grain sizes ranging from 3 to 8 microns, a dry-bulk density of 2.3 g/cm^3, a bulk density in water of 3.2 g/cm^3, and a crystalline density of 8.3 g/cm^3 was used. The specimen was dried for 48 hours at a temperature of 140°C. Then the specimen was placed into a cylindrical vessel 50 mm high and 30 mm in diameter, made of brass sheet 0.13 mm thick. A schematic diagram of the vessel is shown in Figure 1 where 1. is the cylinder wall; 2. the upper lid; 3. the lower lid; 4. the eyelet for suspension; 5. the cover of the filling opening; 6., 7., 8., 9., joints soldered with tin; 10. the suspension wire; and 11. the powderized specimen. The density

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Specific Heat and Thermal Conductivity of Powderized Uranium Oxide U_3O_8

of the powderized specimen, as packed into the vessel, was $s_{U_3O_8}=3.78$ g/cm^3. For a temperature range of 24 - 98°C, an average specific heat value $c_{U_3O_8}=0.6793 \pm 0.00024$ kcal/kg°C was obtained. This value differs from that obtained by the Woestyn method by 13.85%, but is in good agreement with the specific heat values of UO_2 and UO_3. The U_3O_8 thermal conductivity was derived from the changes of the temperature T with time τ, as plotted during the heating of the stirred calorimeter water after the immersion of the specimen vessel (Figure 2). The value was calculated from the equation for non-stationary heat transfer by conduction, assuming a constant incipient temperature T_p through the entire volume of the heated specimen (before its immersion) and a constant surface temperature T_S of the specimen during its cooling in the calorimeter. The solution yields an average thermal conductivity value $\lambda_{U_3O_8} = 0.1193 \pm 0.0017$ kcal/mh°C for an actual specimen density s=3.78 g/cm^3 and a porosity of 54.5%. This value is in good agreement with results obtained by V.S. Chirkin (Ref. 8) for the thermal conductivity of powderized UO_2. This simple method can especially be used where the contamination of the calorimeter medium has to be avoided and where the substances measured must not be diffused during the measuring operation. There are 2 figures and 13 references: 5

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A201/A026

Specific Heat and Thermal Conductivity of Powderized Uranium Oxide U_3O_8

Czech, 3 Soviet, 1 East-German and 4 English.

ASSOCIATION: Ústav jaderného výzkumu ČSAV (Institute of Nuclear Research), Prague

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

ZAJIC, V

Metr: 4E2a

Specific heat and thermal conductivity of powdered uranium oxide, U_3O_8. Vladimir Zajic (Inst. Nuclear Research, Czechoslov. Acad. Sci., Prague). Jaderna energie 6, 200-1(1960).—By calorimetric measurements, the sp. heat and av. thermal cond. in the temp. range from 20° to 100° of powd. U_3O_8 of d. 3.78 g./cc. and particle size about 5 μ, were found to be 0.0679 kcal./kg. degree and 0.119 kcal./m. hr. degree, in good correlation with UO_2 and UO_3. H. Newcombe

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

CZECHOSLOVAKIA/Nuclear Physics - Nuclear Technology and Power. C

Abs Jour : Ref Zhur Fizika, No 12, 1959, 26990

Author : Zajic, Vladimir; Pfann, Jaroslav; Gregor, Jan

Inst : Institute of Nuclear Physics, Czechoslovak Academy of Sciences

Title : Project of Experimental Homogeneous Ten Megawatt Reactor with Circulating Fuel Suspension of Uranium Oxide in Light Water

Orig Pub : Jaderna energie, 1958, 4, No 12, 361-365

Abstract : Description of a project of a homogeneous ten megawatt reactor with circulation of the fuel suspension of uranium oxide in heavy water. Results are given of the calculation of the critical parameters of the reactor and the principal scheme of the primary coolant loop is described. -- P.P. Sosenko

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ZAJIC, VLADIMIR

10(0); 26(1) PHASE I BOOK EXPLOITATION CZECH/2369

Československá Akademie Věd. Sekce technická

Proudění v lopatkových strojích (Flow Through Turbomachinery) Praha, Nakladatelství Československé Akademie Věd, 1956. 415 p. (Series: Its: Sborník ústavu pro výzkum strojů) Errata slip inserted. 1,250 copies printed.

Scientific Ed.: Jan Jeric, Engineer, Doctor, Corresponding Member of the Czechoslovak Academy of Sciences; Resp. Ed.: Ladislav Erdina; Tech. Ed.: František Končický.

PURPOSE: This collection of papers is intended for engineers and scientific workers in the field of turbomachinery.

COVERAGE: The collection covers turbomachinery theory, investigations of the flow of working substance in basic elements of turbomachines, phenomena accompanying flow and variable with time, and investigations of various problems on experimental machines and models. A Russian and an English summary follows each paper. No personalities are mentioned. There are 189 references: 73 Czech, 57 English, 38 German, 20 Russian, and 1 Dutch.

2. Wergner, F., Engineer, ČKD Stalingrad. Optimum Solving of the Inlet to the Impeller of a Turbocompressor With Limit Performance 31
Discussion: Buňata, Oldřich, Engineer, VZLU (Výzkumný a Zkušební Letecký Ústav-Research and Experimental Aeronautical Institute) 69

3. Erhart, František, Engineer, Doctor of Technical Sciences, VÚTT. Designing Warped Blades of Centrifugal Pump and Water Turbine Impellers With Minimum Danger of Cavitation 72
Discussion: Hošek, J., Engineer, Doctor, VZLÚ 91

II. FLOW RESEARCH IN BASIC ELEMENTS OF TURBOMACHINERY

4. Hořejší, Milan, Engineer, VÚTT. Systematic Research on Airfoil Cascades 95
Discussion: Hibs, Miroslav, Engineer, VÚTT 110
Ring-type Diffusers 123
Hošek, Josef, Engineer, Doctor, VZLÚ 124
Mašek, Zdeněk, Engineer, VZLÚ

5. Pelík, Luděk, Engineer, VÚTT. Methods of Research on Airfoil Cascades and Their Application in Designing Turbine Blades 126
Discussion: Kousal, Milan, Engineer, PSKG (The First Brno Engineering Works of Klement Gottwald) Design of a Reaction Turbine Blade Profile 141

6. Dukovský, Jan, Doctor C. Ae. (Civil Aeronautics) VZLU. Research on Arrangement of Blading in High-speed Turbomachinery 146

7. Zajíc, Vladimír, Doctor, Engineer, ZVIL (V. I. Lenin Works, Plzeň). Evaluation of Measurements of Airfoil Cascades and Use of Analog Computers 200
Discussion: [illegible], A., ÚMS (Institute of Mathematical Machines, Czech Academy of Sciences). Basic Functional Elements of the Anapos Analog Computer 223
Pepný, Josef, Engineer, VÚS (Machinery Research Institute) ZVIL, Plzeň. Wind Tunnel for Airfoil-Cascade Research 225

8. Janoušek, Zbyněk, Doctor of Natural Sciences, VZLU. Modern Ideas on Turbulence in the Boundary Layer 233
Discussion: Dvořák, R., Engineer, and M. Pichal, Engineer, ÚVS (Institute for Research on Machinery, ČSAV). Contribution to Measuring Turbulence in a Compressible Medium 243

9. Škarecký, Rudolf, Engineer, VÚTT. Self-excited Vibrations of Blades in Turbomachinery 259

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

ZAJIC, V.; KAMENICKY, J.

"Discussion of J. Klier's article "Disconnecting Direct-Current Short Circuits by Means of Quick-Break Switches."

Elektrotechnicky Obzor. Praha, Czechoslovakia. Vol. 47, no. 10, Oct. 1958.

Monthly list of East European Accessions (EEAI), LC, Vol. 8, No. 6, Jun 59, Unclas

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

CZECHOSLOVAKIA/Nuclear Physics - Nuclear Technology and Power.

Abs Jour : Ref Zhur - Fizika, No 6, 1959, 12637

Author : Pfann, Jaroslav; Zajic, Vladimir

Inst : Institute of Nuclear Physics, Prague, Czechoslovakia

Title : Nomographic Solution of Critical Equation for a Nuclear Reactor, and Its Application.

Orig Pub : Jaderna Energie, 1958, 4, No 5, 114-122

Abstract : An analysis is made of the mathematical formulation of the critical equation for a nuclear reactor, and a nomogram is plotted for the calculation of the critical radius of a spherical reactor, along with a plot for recalculating the results for reactors of other shapes.

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

ZAJIC, V.

Distr: 4E3c/4E3d

Solution of the critical equation of reactors and its practical application. Jaroslav Pfann and Vladimir Zajic (Inst. nucl. phys., Prague). *Jaderna energie* 4, 114-22 (1958).—Nomographs are designed for the equation $be^{-Br} - 1 - B^2L^2 = 0$ where B is the geometrical parameter of the reactor and L the length of diffusion for neutrons. From the nomograph the crit. radius of spherical reactors can be read and graphs give the relation of the dimensions of cylindrical and prismatic reactors to the diam. of spherical ones. The influence of a reflector is computed. G. P. R.

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ZAJIC , V.

TECHNOLOGY

PERIODICALS: JADERNA ENERGIE Vol. 4, no. 12, Dec. 1958

ZAJIC, V.: PFANN, J.: GREGOR, J. Design of an experimental 10 MW. homogenous reactor fueled with circulating uranium oxide suspension in light water. p. 361

Monthly List of East European Accessions (EEAI) LC Vol. 8, no. 5
May 1959, Unclass.

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

ŽAJIC, V. MORAVOVA, H.

Technical standard and further development of short-circuit testing station. p. 30.

(Czechoslovak Heavy Industry. No. 5, 1957. Prague, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, no. 10, October 1957. Uncl.

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

ZAJIC, V.

Mission and facilites of the short-circuit test establishment in Czechoslovakia. pa. 3.
(Czechoslovak Heavy Industry. No. 5, 1957. Prague, Czechoslovakia)

SO: Monthly List of East European Accessions (E AL) LC, Vol. 6, no. 10, October 1957. Uncl.

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963430008-7

ZAJIC, V.

A review of indirect methods. p. 379.

(Elektrotechnicky Obzor. Vol. 46, no. 7, July 1957. Praha, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, no. 10, October 1957. Uncl.

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