

RADIOACTIVITY: RISK AND HOPE

WORKSHOP IN MEMORY OF MARIA SKŁODOWSKA-CURIE

130th Anniversary of the Birth of Maria Skłodowska-Curie

100 Years since the Discovery of POLONIUM and RADIUM

Krakow, 6 -7 October 1997

The Henryk Niewodniczański Institute of Nuclear Physics,

Department of Radiation and Environmental Biology,

Krakow Branch, Polish Radiation Research Society, memorial to

Maria Skłodowska-Curie

Workshop supported by

The NATIONAL ATOMIC ENERGY AGENCY and PHILIPS INDUSTRIAL X-RAY

BOOK OF ABSTRACTS (Raport INP 1762/B 1997)

Honorary Committee

Prof.dr hab. Jerzy Niewodniczański - President, National Atomic Energy Agency
(Chairman)

Prof.dr hab. Andrzej Budzanowski - Director, Institute of Nuclear Physics in
Krakow

Prof.dr hab. Andrzej Hrynkiewicz - President, Scientific Board of the Institute
of Nuclear Physics, Krakow

Prof.dr hab. Jan Skołyszewski - Director, Oncology Centre, Krakow

Prof. dr hab. Antoni Gajewski - President, Polish Radiation Research Society
memorial to Maria Skłodowska-Curie

Organizing Committee: Department of Radiation and Environmental Biology, INP, Krakow



Antonina Cebulka-Wasilewska

Ewa Bartel

Barbara Janiszewska

Ewa Kasper

Małgorzata Litwiniszyn

Dorota Nowak

Igor Pawłyk

Ewa Tomankiewicz

Joanna Wiltowska

Jerzy Huczkowski

Tomasz Janiszewski

Stanisław Krasnowolski

Wojciech Niedźwiedź

Barbara Pałka

Krystyna Rękas '

Anna Wierzeńska

Barbara Zych

PROGRAMME OF THE WORKSHOP

October 6 (Monday)

8:30 - 9:00 . **Registration** (Institute of Nuclear Physics - Main Building - First Floor)

9:00 - 9:30 **Opening address:**

Prof.dr hab. Jerzy Niewodniczański, Prof.dr. hab. Jan Skolyszewski,

Prof.dr hab. Andrzej Budzanowski

Fig.1.



9:30 - 9:45 **A. Cebulska-Wasilewska** "Radioactivity: the risks and hopes of Maria Skłodowska-Curie"

Fig.2.



9:45 - 10:15 **Coffee Break**

10:15 - 12:00 **Radioactivity: Risk**
Chairpersons: **J. Denekamp, I. Szumiel**

10:15 - 10:40 **KH.Chadwick**, H.P. Leenhouts, "The molecular theory of radiation biology - reflections",

10:40 - 11:00 **M. Zdzenicka** "Genetic basis of the mammalian cellular response to ionizing radiation"

11:00 - 11:20 **I.Szumiel**, M.Kapiszewska, I.Grądzka, B.Sochanowicz, A.Gasińska, A. Jaworska, "Proto-oncogene expression, cell cycle arrests and apoptosis in X-irradiated L5178Y sublines".

11:20 - 11:40 **H.P. Leenhouts**, K.H. Chadwick, "A molecular theory of radiation induced cancer"

11:40 - 12:00 **Z. Pietrzak-Flis**, "²²⁶Ra, ²¹⁰Pb and ²¹⁰Po in diet and man in Poland"

12:00 - 13:00 **Lunch (Institute of Nuclear Physics - canteen)**

13:00 - 15:00 **Radioactivity: the Hope**
Chairpersons: **I.Szumiel, J. Denekamp**

Fig.3

13:00 - 13:30 **J.Denekamp** "Challenging dogma. Are some forms of hypoxic cells more radiosensitive than others?",



- 13:30 - 13:50** Y.S.Mardinsky, S.E. Oulianenko, G.M. Obaturov, R.S. Budagov, T.S. Tsyb, S.P. Kapchigachev, V.A.Sokolov, A.S.Sisoev, I.A.Gulidov, V.M. Litiyev, "20 years experience in radiobiology of neutron and 10 years experience of neutron therapy in Obninsk, Russia".
- 13:50 - 14:20** J. Capala, A.Z. Diaz, M. Chadha, J.A. Coderre J., E.H. Elowitz, DD. Joel, J.Iwai, H.B.Liu, M.S.Shady, L.Wielopolski, AD. Chanana, "BNCT for glioblastoma multiforme (GBM) using the epithermal neutron beam at the Brookhaven Medical Research Reactor".
- 14:20 - 14:40** R. Huiskamp, "Brain tolerance in dogs to Boron Neutron Capture Therapy with borocaptate sodium (BSH) or boronophenylalanine (BPA)".
- 14:40 - 15:00** J.Huczowski, J.Skołyszewski, B.Łazarska, E.Byrski, A.Cebulska-Wasilewska, A.Gasińska "Radiobiology and clinical application of unconventional neutron beam - the Krakow experience"

15:00 - 15:15 Coffee Break

15:15 - 16:30 Radioactivity: Risk and Hope
Chairpersons: M.Zdzienicka, K Chomiczewski

Fig.4.



- 15:15 - 15:30** Dziekiewicz, K Chomiczewski, H. Jabłońska, "The effect of PGE Gastrin and CCK-8 on postirradiation recovery of small intestine epithelium"
- 15:30 - 15:45** A. Gasińska, "How we can improve radiotherapy results of malignant tumours?"
- 15:45 - 16:00** P. Olko, M. Waligórski, "The Hadron Radiotherapy Centre Project at the Institute of Nuclear Physics in Kraków".
- 16:00 - 16:15** M. Kruszewski, M. Wojewódzka, T. Iwaneńko, AR. Collins, "Application of the comet assay for monitoring DNA damage in workers professionally at risk of exposure to low doses of ionizing radiation ",
- 16:15 - 16:30** J.K. Kim, KRękas, A Cebulska-Wasilewska, "Application of TSH bioindicator for studying the biological efficiency of neutrons from Californium-252 source

19:00 – 23:00 Reception ('Dom Polonii', Rynek Główny 6)

Figs.5a-5c



19:00 – 23:00 Reception ('Dom Polonii', Rynek Główny 6)



Figs.6a-6c.

October 7 (Tuesday)

9:30 - 10:20 **Radioactivity: Risk and Hope**
Chairpersons: Z. Pietrzak-Flis, J. Huczowski

- 9:30 - 9:40 **A. Cebulska-Wasilewska**, "Comparison between cytogenetic damage induced in human lymphocytes by environmental chemicals or radiation",
- 9:40 - 9:50 **D. Słonina**, A Gasińska, "Micronucleus assay in lymphocytes of healthy donors and cancer patients",
- 9:50 - 10:00 **A. Wjertzewska**, E. Kasper, R. Huiskamp, A Cebulska-Wasilewska, "RBE of various energy neutrons assessed from chromosome aberrations induced in human blood lymphocytes".
- 10:00 - 10:10 **W. Niedźwiedź**, **D. Nowak**, A. Cebulska- Wasilewska, "Studies on the kinetics of DNA damage induction and repair in human lymphocytes by various LET radiation".
- 10:10 - 10:20 **D. Nowak**, W. Niedźwiedź, A. Cebulska-Wasilewska, "Correlations between DNA and chromosomal damage induced in human lymphocytes".
- 10:20 - 10:40 **Coffee Break**

10:40 - 11:30 **Radioactivity: Risk and Hope**
Chairpersons: A. Gasińska, J. Capała

- 10:40 - 10:50 **J.W. Mietelski** "Long lived remains of Chemobyl fallout in Poland".
- 10:50 - 11:00 **M.Kowalska** "Radiation induced neoplastic transformation in C3H10T1/2 cells: what have we learned?"
- 11:00 - 11:10 **S.KrasnowoIski**, J, Huczowski, B. Janiszewska, T, Janiszewski, A, Cebulska-Wasilewska, "Lung damage after a combined treatment of fractionated irradiation and pentoxifylline"
- 11:10 - 11:20 **B.Palka**, A Cebulska-Wasilewska, M, Litwiniszyn, I.Pawłyk, R. Huiskamp, "RBE of various energy neutrons assessed from TSH assay",
- 11:20 - 11:30 **K.Rękas**, A Cebulska-Wasilewska, J, Capała, "Biological efficiency of epithermal neutrons estimated from gene mutations in TSH assay",

11:30-12:00 Radiation and Environmental Biology Department, INP, visiting laboratories



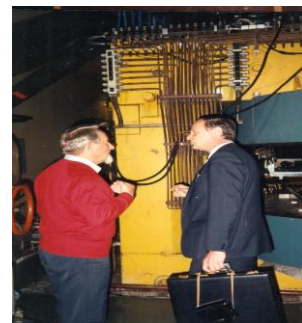
Figs.7a-7c.



12:00-12:30 Visiting AIC144 Cyclotron prepared for Hadron Radiotherapy Centre, INP



Figs.8a-8c



12:30 - 14:30 Closing ceremony and visiting Museum of the Jagiellonian University

Figures Description;

Fig.1. Prof.dr hab.Andrzej Budzanowski - Opening Ceremony

Fig.2. A. Cebulska-Wasilewska, lecture "Radioactivity: the risks and hopes of Maria Skłodowska-Curie

Fig.3. Session-Radioactivity: the Hope Chairpersons: Prof. I.Szumiel, Prof.J. Denekamp

Fig.4. Session-Radioactivity: the Risk and Hope Chairpersons: Prof. M.Zdzienicka, Prof.K.Chomiczewski (WIHE, Warsaw)

Figs.5a-5c. Reception at 'Dom Polonii" Fig.5a-Welcome to reception from Dr. Jerzy Huczowski. standing: Prof. A.Hryniewicz, Prof.A.Cebulska-Wasilewska, Dr.R.Huiskamp (ECN Petten), Dr.H.Leenhouts (RIVM,Bilhowen,Holland), Fig.5b. Dr.W.Niedźwiedź (sitting) standing Prof. A.Hryniewicz (INP, Krakow), Dr J.Capala (BNL, US),Prof.A.Budzanowski (INP, Krakow) Fig.5c. Brief break with violin music played by Academy student.

Figs.6a-6c. Fig.6a Dr.Bo Littbrand, Dr.J.Capala,(behind Dr.E.Byrski and Prof. M.Kruszewski), Prof.A.Dancewicz, Prof. A.Gasińska, Prof.J.Skołyszewski, (behind workshop participant from INP) Dr. Y. Mardinsky(Russian Academy of Medical Sciences, NRC Obninsk, behind him Dr.W.Niedźwiedź, Dr. S.E. Oulianenko (RAMS,Obnińsk. Russia) discussing with Dr. H. Godunową (INP,Krakow), Prof. A.Hryniewicz discussing with Dr.J.Huczowski (INP,Krakow), Dr.K.H.Chadwick (EC Directorate General XII, Brussels, Belgium). Fig.6b.Dr. J.Capala (US),Dr.R.Huiskamp (ECN, Holland and Prof.A.Cebulska-Wasilewska (INP,Krakow. Fig.6c . Prof.M.Zdzienicka (Univwrsity of Leiden,Holland, Prof. A.Gasińska (OC, Krakow), Dr J.Huczowski (INP Krakow) Prof. J.Dennekamp (- UMEA University, Sweden), Prof.J.Skołyszewski (OC, Krakow), Prof. Bo Littbrand (UMEA University), Krzysztof Zdzienicki, Holland).

Figs.7a-7c.Fig.7a..A.Cebulska-Wasilewska, Prof.Z.Pietrzak-Flis (CLOR, Warsaw, Prof. M.Zieliński (UJ,Krakow) Dr.R.Huiskamp.Fig.7b.Prof.K.Chomiczewski (WIHE,Warsaw), Dr.R.Huiskamp. Fig.7c. Dr. S.E. Oulianenko with Prof.A.Cebulska-Wasilewska.

Figs.8a-8c Cyklotron AIC 144, IFJ,Kraków. Fig.8a. Dr. K.H. Chadwick with Prof.A.Cebulska-Wasilewska Fig.8b. Dr.H.Godunowa, Dr. Y. Mardinsky, Dr. J.Schwabe (one of the AIC 144 designer, INP,Krakow). Fig.8c.Ing.E.Bakewicz and. Dr. S.E. Oulianenko.