

## **RADIOACTIVITY: RISK AND HOPE**

**WORKSHOP IN MEMORY OF MARIA SKŁODOWSKA-CURIE**

**130<sup>th</sup> 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)**

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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. Zdzienicka** "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**, "<sup>226</sup>Ra, <sup>210</sup>Pb and <sup>210</sup>Po 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**



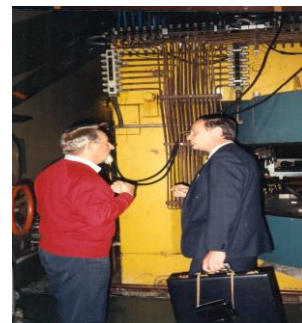
**Figs.7a-7c.**



**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.Hrynkiewicz, Prof.A.Cebulska-Wasilewska, Dr.R.Huiskamp (ECN Petten), Dr.H.Leenhouts ( RIVM,Bilhowen,Holland), Fig.5b. Dr.W.Niedźwiedź (sitting) standing Prof. A.Hrynkiewicz (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.Hrynkiewicz 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.