



Massimo Caccia

 UNIVERSITY OF INSUBRIA



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Contact data

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Biography

Massimo Caccia was born on June 14, 1961.

- 1985, Laurea degree cum laude at the University of Milan
- 1986, Fellow at the European center for Nuclear Research, Geneva, Switzerland. Grant by the Angelo della Riccia Foundation
- 1987-1990: Graduate student at the University of Milan.
- 1990, Post-doctoral fellow at I.N.F.N., the Italian National Institute of Nuclear Physics
- 1991-1993: Fellow of the European center for Nuclear Research
- 1993: Research Officer, with a permanent position, at the University of Milano
- 1999: Associate Professor at the University of Insubria
- 2004: Head of the Dept. Of Physics and Mathematics

Research interests

Prof. Caccia's research activity is focused on ionizing particle detection technologies for Elementary Particle Physics and Biomedical applications. In particular, he participated in the development of high granularity position sensitive sensors based on the direct detection of the ionization in a Silicon substrate (microstrip and pixel detectors). His main activities are summarized in the following.

- Detectors for fundamental Elementary Particle Physics. He participated into the development, commissioning and exploitation of the Silicon Vertex Detector for the DELPHI experiment at the Large Electron-Positron collider at CERN. He has been leading the project in 1993 and 1997-1999, after its final upgrade to include hybrid pixel detectors. He joined the ATLAS collaboration with a specific task related to hybridization issues of the pixel vertex detector under development, proposing a procedure for the critical Indium bump-bonding yield optimization. Since 1996, he is a participating member of the ECFA-DESY study group making the case for an electron-positron

linear collider in the 500-800 GeV center of mass energy range. Nowadays, he is leading the Italian team involved in the development of a dedicated Vertex Detector.

- Detectors for Biomedical Applications (the SUCIMA project, Silicon Ultrafast Cameras for electron and gamma sources In Medical Applications). Since November 2001, Prof. Caccia is coordinating a project approved by the European Commission within the Fifth Framework Program. The main goal of the project is the development of an advanced imaging technique of extended radioactive sources used in medical applications, where imaging has to be intended as the record of a dose map. The R&D plan is addressing the use of monolithic pixel sensors in CMOS and SOI technology. The validation of the proposed imaging method is progressing through the use of silicon microstrip detectors.

Teaching experience and appointments

- in charge of the following courses:
- Fundamental Physics for Chemists & Mathematicians
- Basic Physics Lab for Physicists
- Probability, Statistics and Data Analysis techniques
- High Energy Physics
- 2004: Head of the Dept. Of Physics and Mathematics

Representative publications

All of the publications in the following were published in English

- BIANCHI C, CACCIA M, CAPPELLINI C, CONTE L, GRIGORIEV E, LORUSSO R, NOVARIO R, SAMPIETRO C, TANZI F. (2004). Silicon detector versus gafchromic film for brachytherapy sources characterisation. RADIOTHERAPY AND ONCOLOGY. vol. 71, pp. S83 - S84 ISSN: 0167-8140, ISI:000222468200181

-BIANCHI C, SAMPIETRO C, NOVARIO R, LORUSSO R, TANZI F, CONTE L, CAPPELLINI C, CACCIA M. (2004). Gafchromic hs radiochromic films for ivbt sources dosimetry. RADIOTHERAPY AND ONCOLOGY. vol. 71, pp. S42 - S42 ISSN: 0167-8140, ISI:000222353500108

-CACCIA M, ALEMI M, BLANCHI C, BULGHERONI A, CAPPELLINI C, CONTE L, KUCEWICZ W, PREST M, VALLAZZA E, SAMPIETRO C. (2004). Imaging of beta particle sources used in medical applications with position sensitive Silicon sensors. NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION A-ACCELERATORS SPECTROMETERS DETECTORS AND ASSOCIATED EQUIPMENT. vol. 525, pp. 294 - 297 ISSN: 0168-9002, ISI:000221974600059

-CAPPELLINI C, AIROLDI A, ALEMI M, AMATI M, BIANCHI C, BULGHERONI A, CACCIA M, CONTE L, KUCEWICZ W, PREST M, VALLAZZA E, SAMPIETRO C. (2004). First results on real-time quality control and dosimetry of beta emitting sources used in medical applications using silicon strip detectors. NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION A-ACCELERATORS SPECTROMETERS DETECTORS AND ASSOCIATED EQUIPMENT. vol. 527, pp. 46 - 49 ISSN: 0168-9002, ISI:000222712200010

-CAPPELLINI C, BIANCHI C, BULGHERONI A, CACCIA M, CONTE L,

GRIGORIEV E, KUCEWICZ W, MOZZANICA A, SAMPIETRO C.
(2004). A novel beta particle silicon dosimeter. RADIO THERAPY AND
ONCOLOGY. vol. 71, pp. S40 - S40 ISSN: 0167-8140,
ISI:000222353500103

-KUCEWICZ W, ALEMI M, AMATI M, BADANO L, BARTSCH V,
BERST D, BIANCHI C, DE BOER W, BOL H, BULGHERONI A,
CACCIA M, CAPPELLINI C, CANNILLO F, CLAUS G, COLLEDANI C,
CONTE L, CZERMAK A, DEPTUCH G, DIERLAMM A, DOMANSKI K,
DULINSKI W, DULNY B, FERRANDO O, GRABIEC P, GRIGORIEV E,
JAROSZEWICZ B, JUNGERMANN L, KUCHARSKI K, KUTA S, LEO
G, LORUSSO R, MARCZEWSKI J, MONDRY G, MACHOWSKI W,
NIEMIEC H, NOVARIO R, PEZZETTA M, POPOSKI Y, PREST M,
RIESTER JL, SAMPIETRO C, SAPOR M, SCHWEICKERT H,
TOMASZEWSKI D. (2004). Position-sensitive silicon detectors for real-
time dosimetry in medical applications. NUCLEAR INSTRUMENTS &
METHODS IN PHYSICS RESEARCH SECTION A-ACCELERATORS
SPECTROMETERS DETECTORS AND ASSOCIATED EQUIPMENT.
vol. 518, pp. 411 - 414 ISSN: 0168-9002, ISI:000188961100115

-MARCZEWSKI J, DOMANSKI K, GRABIEC P, GRODNER M,
JAROSZEWICZ B, KOCIUBINSKI A, KUCHARSKI K, TOMASZEWSKI
D, KUCEWICZ W, KUTA S, MACHOWSKI W, NIEMIEC H, SAPOR M,
CACCIA M. (2004). SOI active pixel detectors of ionizing radiation -
Technology and design development. IEEE TRANSACTIONS ON
NUCLEAR SCIENCE. vol. 51, pp. 1025 - 1028 ISSN: 0018-9499,
ISI:000222644400039

-AMATI M, BARANSKI M, BULGHERONI A, CACCIA M, DOMANSKI
K, GRABIEC P, GRODNER M, JAROSZEWICZ B, KUCEWICZ W,
KUCHARSKI K, KUTA S, MACHOWSKI W, MARCZEWSKI J,
NIEMIEC H, SAPOR M, TOMASZEWSKI D. (2003). Hybrid active pixel
sensors and SOI inspired option. NUCLEAR INSTRUMENTS &
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SPECTROMETERS DETECTORS AND ASSOCIATED EQUIPMENT.
vol. 511, pp. 265 - 270 ISSN: 0168-9002, ISI:000185234200053

-CACCIA M. (2003). Biomedical applications of High Energy Physics
solid state sensors and electronics. NUCLEAR PHYSICS B-
PROCEEDINGS SUPPLEMENTS. vol. 125, pp. 145 - 153 ISSN: 0920-
5632, ISI:000185372900026

-CACCIA M, AIROLDI A, ALEMI M, AMATI M, BADANO L, BARTSCH
V, BERST D, BIANCHI C, BOL H, BULGHERONI A, CANNILLO F,
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NIEMIEC H, NOVARIO R, PAOLUCCI L, PEZZETTA M, POPOWSKI
Y, RIESTER JL, SAMPIETRO C, SAPOR M, SCHWEICKERT H.
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Medical Applications. NUCLEAR PHYSICS B-PROCEEDINGS
SUPPLEMENTS. vol. 125, pp. 133 - 138 ISSN: 0920-5632,
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-MARCZEWSKI J, TOMASZEWSKI D, DOMANSKI K, GRABIEC P, CACCIA M, BORGHI S, CAMPAGNOLO R, KUCEWICZ W. (2003). Charge sharing modeling in pixel detectors with capacitive charge division. IEEE TRANSACTIONS ON ELECTRON DEVICES. vol. 50, pp. 26 - 31 ISSN: 0018-9383, ISI:000181542400005

-BATTAGLIA M, BORGHI S, CACCIA M, CAMPAGNOLO R, KUCEWICZ W, PALKA H, ZALEWSKA A. (2001). Hybrid pixel detector development for the linear collider vertex detector. IEEE TRANSACTIONS ON NUCLEAR SCIENCE. vol. 48, pp. 992 - 996 ISSN: 0018-9499, ISI:000171660300009

-BATTAGLIA M, BORGHI S, CAMPAGNOLO R, CACCIA M, KUCEWICZ W, JALOCZA P, PALKA H, ZALEWSKA A. (2001). Hybrid pixel detector development for the linear collider Vertex Tracker. NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION A-ACCELERATORS SPECTROMETERS DETECTORS AND ASSOCIATED EQUIPMENT. vol. 473, pp. 79 - 82 ISSN: 0168-9002, ISI:000172004400014