

# Ryszard Stroynowski

## Bio Sketch, January 2019

### Education

1970 – 1973 Ph.D. University of Geneva, Switzerland, Advisors: D.R.O. Morrison, R. Mermod  
1963 - 1968 M.Sc. University of Warsaw, Poland, Advisors: L. Michejda, A.K. Wroblewski

**Postdoctoral sponsors:** D.R.O. Morrison (CERN), A. Minten (CERN), G. Charpak (CERN), D. Leith (SLAC), B. Barish (Caltech)

### Employment

1993 – present	SMU, Dallas, TX	Professor
1991 – 1993	SMU, Dallas, TX	Associate Professor
1987 - 1991	Caltech, Pasadena, CA	Lecturer
1980 - 1987	Caltech, Pasadena, CA	Senior Research Associate
1975 - 1980	SLAC, Stanford, CA	Research Associate
1970 - 1975	CERN, Geneva, Switzerland	Staff Physicist
1969 - 1970	CERN, Geneva, Switzerland	Visiting Scientist
1968 - 1969	University of Warsaw, Poland	Assistant

### Short visits

2012-2017	Visiting Scientist, LAL, Universite de Paris-Sud, Orsay, France
1997	Professeur Invite, Universite de Paris XI, France (6 month)
1986	Visiting Professor, UCLA (one term)
1983	Visiting Professor, Lausanne, Switzerland (one term)
1972	Visiting Professor, University of Helsinki, Finland (2 months)
1969	Niels Bohr Institute, Copenhagen, Denmark (2 months)

### Awards and memberships

2015	Elected to the Kosciuszko Collegium of Eminent Scientists of Polish Descent
2006	Gerald L. Ford Research Fellow
2002	Academie de Versailles, France, Research Fellow
1993	American Physical Society Fellow

### Professional Service

2016 – present	Chair, Physics Department, SMU
2007 – 2010	Chair, Physics Department, SMU
1991- present	Principal Investigator for the SMU High Energy Physics group
1996 - 2010	Level-2 Manager for the US-ATLAS Liquid Argon Calorimeter
2006 - 2008	Chair, ATLAS LAr Collaboration Group Representatives
2002 - 2005	ATLAS Collaboration Board Advisory Group 2002-2005.
1997 - 2004	Steering Committee of the NATO Science for Peace Program
1991 - 1993	GEM Executive Board, lead physicist for GEM magnet

1975 - 1980 Spokesman, E127 Experiment (SLAC)  
1971 – 1973 Spokesman, 100 GeV  $\pi$ -p Bubble Chamber Experiment (Fermilab)

**Reviewer** for the DOE, NSF proposals and submissions to scientific journals. Most recently:

Physical Review, Physical Review Letters

2010, 2014, 2016 DOE HEP Intensity Frontier Panel

2013 DOE Fermilab Science and Technology Panel

2010 Fermilab Decadal Program Panel

2010 DOE MicroBoNE project Lehman Review Panel

## Research experience

1997 – now ATLAS at LHC: Proton-proton collisions at 7, 8 and 13 TeV: development of Liquid Argon calorimetry, Higgs boson discovery and studies of Higgs boson properties

2007-2010 ebubble: development of tracking detector for low energy solar neutrino detection

1990-2004 CLEO at CESR: electron-positron annihilations at 9.5 GeV: physics of tau lepton, tau neutrino, charm and bottom quarks, first observation of  $b \rightarrow s\gamma$

1993 development of the LYRA project to measure light birefringence in magnetic field to search for axions

1991-1993 GEM at SSC: design and prototyping of the 19 m diameter, 30 m long superconducting solenoid magnet with novel conductor

1985-1989 MARK II at PEP and SLC: electron-positron annihilations at 25 and 91 GeV: built Time-of-Flight detectors, physics of charm and bottom quarks, and of tau leptons, Z boson, first observation of  $Z \rightarrow \tau$  decays

1980-1984 DELCO at PEP: direct electron production in electron-positron annihilations: physics of charm mesons

1975-1980 SLAC E-127, (LASS Spectrometer): direct electron pair production in proton-proton interactions indicating annihilations of wee quarks

1973-1975 Split Field Magnet Facility at Intersecting Storage Rings (ISR), CERN: study of proton-proton interactions at 63 GeV: inclusive reactions, observation of first large transverse momentum jets indicating quark-quark interactions

1967-1972 Bubble chamber at CERN and Fermilab: pion-proton exposures at 8, 16, 23, 100, 200 GeV; kaon-proton exposures at 10 and 16 GeV: first studies of inclusive reactions leading to acceptance of the parton model of particle structure, measurements of multi-hadron resonances

## Publications

Full list of over 1300 publications can be found at

[http://inspirehep.net/search?ln=en&p=find+a+Stroynowski&of=hb&action\\_search=Search](http://inspirehep.net/search?ln=en&p=find+a+Stroynowski&of=hb&action_search=Search)

## Selected Recent Publications

1) M. Aaboud *et al.*, (ATLAS Collaboration) “Measurement of the Higgs boson mass in the  $H \rightarrow ZZ^* \rightarrow 4\ell$  and  $H \rightarrow \gamma\gamma$  channels with  $\sqrt{s}=13$  TeV  $pp$  collisions using the ATLAS detector.” Phys.Lett. B784 (2018) 345-366.

- 2) M. Aaboud *et al.*, “Measurement of inclusive and differential cross sections in the  $H \rightarrow ZZ^* \rightarrow 4\ell$  decay channel in pp collisions at  $\sqrt{s} = 13$  TeV with the ATLAS detector.” *J. High Energ. Phys.* (2017) 2017: 132.
- 3) M. Aaboud *et al.*, “Measurement of the Higgs boson coupling properties in the  $H \rightarrow ZZ^* \rightarrow 4\ell$  decay channel at  $\sqrt{s} = 13$  TeV with the ATLAS detector.” *JHEP* 1803 (2018) 095.
- 4) M. Aaboud *et al.*, “Search for heavy  $ZZ$  resonances in the  $\ell+\ell-\ell+\ell$  and  $\ell+\ell-\nu\nu^-$  final states using proton–proton collisions at  $\sqrt{s}=13$  TeV with the ATLAS detector.” *European Physical Journal C* 78 (2018) 273.
- 5) M. Aaboud *et al.*, “Observation of Higgs boson production in association with a top quark pair at the LHC with the ATLAS detector.” *Phys. Lett. B* 784 (2018) 173.
- 6) M. Aaboud *et al.*, “ Constraints on off-shell Higgs boson production and the Higgs boson total width in  $ZZ \rightarrow 4\ell$  and  $ZZ \rightarrow 2\ell 2\nu$  final states with the ATLAS detector.” [arXiv:1808.01191v2 \[hep-ex\]](https://arxiv.org/abs/1808.01191v2)
- 7) M. Aaboud *et al.*, “Search for pair production of Higgs bosons in the  $b\bar{b}b\bar{b}$  final state using proton–proton collisions at  $\sqrt{s} = 13$  TeV with the ATLAS detector.” *Phys. Rev. D* 94 (2016) 052002
- 8) G. Aad *et al.*, “Measurements of Higgs boson production and couplings in the four-lepton channel in pp collisions at center-of-mass energies of 7 and 8 TeV with the ATLAS detector.” *Phys. Rev. D* 91 (2015) 012006.
- 9) G. Aad *et al.*, “Fiducial and differential cross sections of Higgs boson production measured in the four-lepton decay channel in pp collisions at  $\sqrt{s} = 8$  TeV with the ATLAS detector.” *Phys. Lett. B* 738 (2014) 234.

### Other significant publications

- 1) G. Aad *et al.*, “Observation of a new particle in the search for the Standard Model Higgs boson with the ATLAS detector at the LHC”. *Physics Letters B* 716 (2012) 1.
- 2) G. Aad *et al.*, “Measurement of the inclusive isolated prompt photon cross-section in pp collisions at  $\sqrt{s}=7$  TeV using 35  $\text{pb}^{-1}$  of ATLAS data”. *Physics Letters B* 706 (2011) 150.
- 3) A. Firan and R. Stroynowski, “Internal conversions in Higgs decays to two photons.” *Physical Review D* 76, 057301 (2007).
- 4) B. Aubert *et al.*, “Construction, assembly and tests of the ATLAS Electromagnetic Calorimeter.” *Nuclear Instruments and Methods*, A5583, 2006.
- 5) P. Avery *et al.*, “Search for CP violation in  $\tau \rightarrow \pi^0 \nu(\tau)$  decay.” *Phys. Rev. D* 64:092005 (2001).
- 6) M. Pierce, J. Ye, G. Evans, R. Stroynowski, M.-L. Andrieux and B. Dinkespieler, “Application of VCSELS to Radiation-Tolerant Optical data Links”, *Springer Series in Photonics on “Vertical-cavity surface emitting laser devices”*, Springer Verlag, 323-341, (2003).
- 7) B. Barish and R. Stroynowski, “The physics of the tau lepton.” *Phys. Rept.* 157 (1988) 1.
- 8) R. Stroynowski, “ The overlap functions for  $\pi\pi$  inelastic processes and their relations to partial inelastic cross-sections”. *Acta Physica Polonica*, Vol. XXXV, 839-847 (1969).

**Graduate students advised at SMU:** Pavel Zadorozhny, M.Sc. 1994, Guoheng Wei, M.Sc. 1995, Igor Volobouyev, Ph.D. 1997(now Assoc. Prof. at Texas Tech), Vasili Shelkov, Ph.D. 1997 (CEO, Rock Flow Dynamics), Ilia Korolkov, Ph.D.1999 (now Research Prof. at Barcelona

University, Spain), Vitaliy Fadeyev, Ph.D. 2000 (now at UC Santa Cruz), Jin Wang, M.Sc. 2000, Ilya Narsky, Ph.D. 2001 (now at Caltech and The Math Works), Yuri Maravin, Ph.D. 2002 (now Assoc. Prof. at Kansas State), Matthew Knee, M.Sc. 2004 (now at American School, Lugano, Switzerland), Triston Dougal, M.Sc. 2006 (now at Anderson Cancer Center, Houston), Franz Faro Aguirre, M.Sc. 2006 (now in industry), Jon Vetter-Cole, M.Sc. 2006, Ana Firan, Ph.D. 2008 (now at NASA Labs, Houston), Y. Li, Ph.D. 2010 (now at BNL), Rozmin Daya, Ph.D. 2011 (now at Spotify), Renat Ishmukhametov, Ph.D. 2012 (now at OSU), Ryan Rios Ph.D. 2012 (now at Lockheed-Martin), Madalyn McKay.

**Postdocs supervised at SMU:** J. Dominick (now in industry), M. Lambrecht (now in industry), S. Sanghera (now in industry), J. Staeck (now in industry), J. Ye (now Prof. at SMU), T. Wlodek (now at BNL), E. Barberio (now Prof. at Melbourne U., Australia), J. Hoffman (now at Academia Sinica, Taiwan), D. Joffe (Assoc. Prof. at Kennesaw State U.), F. Liu (now at UC Riverside), S. Simion (now at LAL, Orsay and CERN), D. Goldin (now at Texas A&M), A. Firan (now at NASA), H. Hadavand (now Assoc. Prof. at UT Arlington), H. Wang (now at Alberta, Canada), T. Varol

**Potential conflicts of interest:** ATLAS collaborators