

# Curriculum Vita

**Zhengguo Zhao**

## **Education**

Ph.D., Experimental Particle Physics, University of Science and Technology of China (USTC), 1988.

M.S., Experimental Particle Physics, USTC, 1984.

B.S., Experimental Particle Physics, USTC, 1981.

## **Professional Career, Responsibilities and Service**

**2001-present:** Research Scientist, Research Scientist, Physics Department., the University of Michigan

**1998-2001:** Professor of physics, Institute of High Energy Physics (IHEP), Chinese Academy of Sciences (CAS). Spokesperson of BES Collaboration. Director of Physics Division One at IHEP of CAS.

**1997-1998:** Associate professor, IHEP of CAS. Physics Analysis Coordinator of BES Collaboration. Group leader of BES calorimeter group.

**1990-1997:** Post Doctor, Research Associate, Institute of Particle Physics (IPP), Swiss Federal Institute of Technology, Zurich Switzerland (ETHZ).

**1988-1990:** Post Doctor, IHEP of CAS, Beijing, China.

## **Honors and Awards**

**2005 Nature Science Prize of China (second class)**

*The prize is awarded to the project “Measurement of  $R$  values in 2-5 GeV”.*

**2004 Outstanding Achievement of Science and Technology Prize of Beijing.**

*This award is for the project “Measurement of  $R$  values in 2-5 GeV”.*

**2003 Outstanding Science and Technology Achievement Prize of the Chinese Academy of Sciences**

*Awarded to the “Measurement of  $R$  values between 2-5 GeV with BES at BEPC”. A golden medal is awarded to me as the first contributor to this project.*

**2001 CAS Outstanding Young Scientist Award.**

**1998 – 2001: Chinese National Science Foundation Outstanding Young Scientist**

**2000: CAS 100 Talent Program Excellent Team Leader Award.**

## **Research Area and Experience**

(A) Recent Research Area: Experimental High Energy Physics

**1. *ATLAS Experiment* (2001-present)**

- Construction of endcap MDT detector at the University of Michigan.
- Diboson production and triple gauge boson couplings.

**2. *D0 Experiment* (2001-2005)**

- Level two trigger of the D0 Pre-shower Detector. Implemented a fast algorithm to find the cluster, send the data to serve the D0 L2 trigger.
- Measurement of the fragmentation function and second binomial moment with D0 Run II data.

**3. *BES Experiment* (1997-2001)**

- In charge of the Beijing Spectrometer (BES) at Beijing Electro-Positron Collider (BEPC). Successfully did the R scan in 2-5 GeV. Collected 58 million  $J/\psi$  events for the systematic study of light hadron spectroscopy and search for new resonances and rare decays
- Preparation for BESIII design, R&D and construction. Drafting the first version of 'The BES III Physics and Design'.
- Measurement of R-value, a ratio of the production cross section of hadron vs. dimuon from  $e^+e^-$  annihilation, in energy region of 2-5 GeV. Measurement of momentum spectrum of the hadronic states in 2-5 GeV with BES R scan data (served as the project leader 1997-2001).

## **(B) Previously Research Area: Experimental High Energy and Participle Physics**

**1. Pionic atom experiment—ETHZ-PSI-Neuchetel Collaboration (1990-1997)**

- *A measurement of the strong interaction shift and width of the 1S level in pionic hydrogen and deuterium (done at [Paul Scherrer Institut](#) in Switzerland)*
- *Search for 33.9 MeV neutral particle in pion decay*
- *$\pi^+p$  180° backscattering experiment*

**2. BES Experiment (1988-1990)**

- Monte Carlo simulation, track finding and fitting of the Central Drift Chamber.
- Measurement of the  $J/\psi$  resonance parameters.

**3. Measurement of the rest mass of anti-electron neutrino with tritium beta ray spectroscopy (1982-1988)**

- Building up iron free double focusing beta spectrometer.
- Design and making of the proportional counter with very thin window and making of the large area tritium source.
- Design and making of the laser equipment pumped by  $^3\text{H}$   $\beta$  decay.

### **Professional Activity and Service**

- Editor of *Journal of Modern Physics* (Particle and Field Section), 1998-present
- Adversary committee member for the *International Workshop on Hadronic Cross Section at Low Energy*, Pisa, Italy, October 8-11, 2003. Chairperson of the “Direct Measurement of R” session.
- Adversary committee member for the *8th International Conference on Instrumentation for Colliding Beam Physics*, Novosibirsk, Russia, February 28-March 6, 2002.
- Program Committee Member of “*The Ninth International Conference on Hadron Spectroscopy* (Hadron01-9<sup>th</sup>). Moscow, Russia, August 25-September 1, 2001.
- *Snowmass 2001* Working Group E2 (Electron-positron Colliders from the  $\phi$  to the Z), Snowmass, USA, 2001. (Principal author of the report)
- Program Committee member of *International Conference on Heavy Flavor Physics*, Zhang-Jiajie, Hunan. China, 2001.
- Editor of *High Energy Physics and Nuclear Physics* (published in China), 1998-2001
- Standing member of Scientific Committee of IHEP of CAS, 1998-2001.
- Convener of *ICHEP2000* for Hadron Spectroscopy Sessions. Chair of the parallel session “Light and Heavy Quarks, Glueballs, Exotics), Osaka, Japan, 2000.
- Program Committee Member of *Hadron99* (Hadron99-8<sup>th</sup>), Beijing, China, 1999.
- Program Committee Member of *CLEOC Workshop-Physics in  $3 < E_{cm} < 5 \text{ GeV}$* , Cornell University, USA, 1999.

**Numbers of publications in total: ~200**

### **Selected Publications (First Author, Lead Author, EB member or Major Contribution)**

1. **Search for the rare decays  $J/\psi \rightarrow D_s e^+ \nu$ ,  $J/\psi \rightarrow D^0 \bar{e}^+ e^-$**   
Phys.Lett.B639:418-423,2006.
2. **Search for supersymmetry via associated production of charginos and neutralinos in final states with three leptons.**  
Phys.Rev.Lett.95:151805,2005.

3. **BESII detector simulation.**  
Nucl.Instrum.Meth.A552:344-356,2005.
4. **Heavy quarkonium physics**  
[N. Brambilla et al.](#) FERMILAB-FN-0779, CERN-2005-005, Dec 2004. 521pp.  
Published as CERN Yellow Report, CERN-2005-005, Geneva: CERN, 2005. -487 p.  
Top citation = 100+ (author for R value session)
5. **Search for the lepton flavor violation processes  $J/\psi \rightarrow \mu\tau$  and  $e\tau$**   
Phys.Lett.B598:172-177,2004.
6. **Measurement of inclusive momentum spectra and multiplicity distributions of charged particles at  $\sqrt{s} = 1-5$  GeV.**  
Phys.Rev.D69:072002,2004
7. **Measurements of the mass and full width of the  $\eta_c$  meson.**  
Phys.Lett.B555:174-180,2003.
8. **SEARCH FOR LEPTON FLAVOR VIOLATION PROCESS  $J/\psi \rightarrow e\mu$ .**  
Phys.Lett.B561:49-54,2003
9. **A measurement of  $\psi(2S)$  resonance parameters.**  
Phys. Lett. B 550 (2002) 24-32.
10. **Report of Snowmass 2001 Working Group E2: Electron - positron colliders from the phi to the Z.**  
[Zhen-guo Zhao et al.](#) SLAC-PUB-9337, FERMILAB-CONF-01-445, SNOWMASS-2001-E2001, Jan 2002. 24pp.  
Report of Snowmass 2001 Working Group E2 APS / DPF / DPB Summer Study on the Future of Particle Physics (Snowmass 2001), Snowmass, Colorado, 30 Jun - 21 Jul 2001.  
*In the Proceedings of APS / DPF / DPB Summer Study on the Future of Particle Physics (Snowmass 2001), Snowmass, Colorado, 30 Jun - 21 Jul 2001, pp E2001.*
11. **The pion nucleon scattering lengths from pionic hydrogen and deuterium.**  
[H.C. Schroder et al.](#) 2001. Eur.Phys.J.C21:473-488,2001.  
TOPCITE = 52
12. **The BES upgrade.**  
Nucl.Instrum.Meth.A458:627-637,2001.  
TOPCITE = 100+
13. **Measurements of the cross-section for  $e^+e^- \rightarrow$  hadrons at center-of-mass energies from 2-GeV to 5-GeV.**  
Phys.Rev.Lett.88:101802,2002.  
TOPCITE = 137
14. **The first measurement of  $\text{Br}(\psi(2S) \rightarrow \tau^+\tau^-)$**   
Phys.Rev.D65 (2002) 052004.

15. **Precise measurement of spin-averaged  $\chi(cJ)(1P)$  mass using photon conversions in  $\psi(2S) \rightarrow \gamma\chi(cJ)$ .**  
Phys.Rev.D71:092002,2005.

**International Conferences and Workshops in Recent years**

- *MRPC, [9th ACFA ILC Physics and Detector Workshop & ILC GDE Meeting](#)*. Feb. 4-7, 2007, Beijing, China.
- *Diboson production and triple gauge boson couplings. [9th ACFA ILC Physics and Detector Workshop & ILC GDE Meeting](#)*. Feb. 4-7, 2007, Beijing, China.
- *Gauge boson pair production and triple gauge boson couplings at HLC*(representing ATLAS and CMS Collaboration), International Conference of High Energy Physics, July 26-August 2, 2006, Moscow, Russia. (invited talk, representing ATLAS and CMS)
- *Diboson Studies at ATLAS*, North American ATLAS Higgs and Standard Model Workshop, Argonne April 27-29, 2006 Chicago, USA.
- *ATLAS tracking chamber*, ATLAS Review of 2004, Freiberg, Germany. (representing ATLAS Muon Spectrometer)
- *Test of QCD in low energy below 5 GeV with BES R scan data*, Quarkonium International Workshop on Quarkonium, August 2003, FNAL USA.
- *R values in low energy  $e^+e^-$  annihilation—Present status and prospects*  
Closing talk given at international workshop on hadronic cross section at low energy. October 2003, Pisa, Italy.
- *Final Result of R in 2-5 GeV and Test of QCD with BES R Scan Data*, International Conference of High Energy Physics, July 24-August 3, 2002, Amsterdam
- *CLEOC/CESRC and BESIII/BEPCII*, BESIII Detector and Physics Workshop, July 2002, Beijing.
- *New Frontier in Strong and Weak Physics: BESII/BESIII/BEPCII*, “Snowmass 2001”, July 8-11, 2001, Snowmass, US
- *BES: Recent Results and Future Plans*, “ $e^+e^-$  Physics at Intermediate Energy”, April 27-May 3, 2001, Stanford University, USA
- *Physics at BES and Future Plans*, “Workshop on Prospects for CLEO/CSER with  $3 < E_{cm} < 5$  GeV”, May 5-7, 2001, Cornell University, USA
- *BES Recent Results*, “The 8<sup>th</sup> Asia Pacific Physics Conference”, August 7-10, 2000 Taipei.
- *New R values in 2-5 GeV from BES at BEPC*, “the XXXth International Conference on High Energy Physics”, July 27-August 2, 2000, Osaka (chair one session, convener)

- *Recent results from BES*, “The 8<sup>th</sup> International Conference on Hadron Spectroscopy”, August 24-27, 1999, Beijing China
- *Beijing Advanced Tau-Charm Facility (BATCF) —BES’s future plan*. “Workshop on Light Hadron Spectroscopy”, CCAST(Chinese Center of Advanced Science and Technology), Beijing, May 1999.
- *R in low energy  $e^+e^-$*  “The XIX International Symposium on Lepton and Photon Interaction”, August 9-15, 1999 Stanford University, USA.
- *Measurement of R with BESII*, “The XXIVth International Conference on High Energy Physics”, July 23-30, 1998, Vancouver, Canada