
HAOYU SHI

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Main Building, IHEP,
CAS, Beijing, China
Post: 100049

Skills

- Dose Estimation,
and Shielding
Design with FLUKA
- Programming
Language: Python,
C#
- Microsoft Office,
LaTeX and
Markdown

Education

University of Chinese Academy of Sciences & Institute of High
Energy Physics, CAS 09/2013-06/2018

Ph.D, Major in Nuclear Science and Technology, Working on
Radiation Protection

Fudan University, 09/2009-06/2013

Bachelor's Degree, Major in Nuclear Science and Technology

Research

Study on MDI Backgrounds on CEPC, 07/2018-now, Postdoc,
IHEP, CAS

Working on MDI Background issues:

- Analyze the source of the backgrounds, including the beam
induced and luminosity induced
- Simulate each source using different generators
- Tracking the lost particles using accelerator tracking code
- Simulate the effects on the detectors

Key Technology:

- Generators of each source

Beam background study on CEPC, 09/2019 - 03/2020, Visiting
Scholar, SLAC

Join in the beam background study on CEPC and other with Michael K. Sullivan

Beam background study on SuperKEKB/Belle II, 11/2018 - 01/
2019 and 03/2019-05/2019, Visitor(User), KEK

Join in the beam background study and learn from the KEK team

Study on Key Issues of Radiation Protection on CEPC,
09/2014 - 06/2018, Graduate Student, IHEP, CAS

Working on issues through Pre-CDR and CDR of CEPC :

- Estimated the effects of SR on CEPC Main Ring
- Designed the Shield of SR on CEPC Main Ring
- Designed the Linac Dump of CEPC
- Pre-design of Main Ring Dump of CEPC
- Optimize the shielding design progress by introducing some algorithms like GA.

Innovation & Key Technology :

- Simulated the SR using Photon Source in FLUKA
- Build the Shielding of the SR as a part of magnet rather than vacuum chamber to cut budget and make installation more easier
- Found a way to optimize the shielding design with GA and FLUKA

Optimize the design of Dump of C-ADS — 09/2015–04/2016, Graduate Student, IHEP, CAS

- Designed and optimized the dump of C-ADS located in Hall 2 of IHEP
- Estimated the dose level of some designs of C-ADS dump

Key Technology :

- Model the complex structure of real accelerator in FLUKA

Tumor magnetic induction therapy, Research on the amplification effect of nano-gold materials — 01/2012–06/2013, Undergraduate Student, Fudan University

- Analysis and compared the effects of some different nano materials in radiation therapy.

Publication

1. Shi Haoyu, et.al, Preliminary Study of Radiation Damage caused by Synchrotron Radiation in CEPC Main Ring . Radiation Detection Technology and Methods, 2018(1)
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2. Shi Haoyu, et.al, Preliminary Design of CEPC Linac Dump, Nuclear Technology, Vol.42(10) (Chinese)
 3. Xu Chao, Ma Zhongjian, Shi Haoyu, et.al, The realization and verification of integrated modeling of the losing source items by using FLUKA for ERL-FEL, Nuclear Technology, Vol.39(7) (Chinese)
 4. Wang Xufei, Shi Haoyu, et.al, Evaluation of Macroscopic Dose Effects of Radiosensitization of High Z Nanoparticles and Its Limitations, Evaluation of Macroscopic Dose Effects of Radiosensitization of High Z Nanoparticles and Its Limitations, Chinese Journal of Medical Physics, 2013 , 30 (6) :4565-4573 (Chinese)

Conference Presentation

1. Study Status on CEPC Beam Backgrounds, ICHEP 2020, Virtual Meeting.
2. CEPC MDI Backgrounds Study Status, CEPC Workshop 2019/2020
3. Estimate and Shielding Design of SR in CEPC, The 1st workshop on applications of high energy CEPC SR Source, Beijing, 2017
4. The Design of CEPC Linac Dump, The 4th National Large-Scale Particle Accelerator Radiation Protection Seminar, Dongguan, 2016
5. Preliminary Design of CEPC Linac Dump based on Box Model, The 12th National Monte Carlo Method Conference, Qufu, 2015

Awards

- Director's Award, IHEP, CAS, 2017
 - People's Scholarship, Fudan University, 2010
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