

East Asian Workshop on Exotic Hadrons 2024

December 8 - 10, 2024, Nanjing, China

101 Participants from 6 countries, many young including 25 students
China, Korea, Japan, Thailand, Philippines, Spain
49 talks



Hadrons are active in Asia



Many Keywords

Ordinary hadrons, Multiquarks, Hybrid, Glueballs, ...
Compact, Extended Molecular, Coexistence, ...

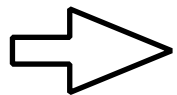
N^* , Λ_c , Σ_c , T_{cc} , P_c , Ω ,
Dibaryons, H-particle, Matter, ...

QCD, Quarks, Gluons, Diquarks

Quark models, Chiral symmetry, EFT, HQsymmetry, ...
Coupled channels, Machine learning, ...

Bell, BES, LHC, JPARC, ...

Scatterings, Productions, Decays, ...



Simple picture (EFT) + 1st principle LQCD

Marek Karliner: Questions to be answered

1. Do they exist?
2. If they do, which ones?
3. What is their internal structure?
4. How best to look for them?

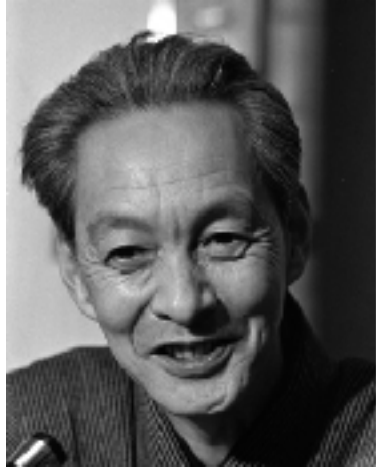
Marek Karliner, QNP proceedings, 2018@Tsukuba
<https://journals.jps.jp/doi/book/10.7566/QNP2018>



Marek Karliner

Studying heavy (exotic) hadrons is somewhat similar to investigating the social life of various quarks:

- (a) Who with whom?
- (b) For how long?
- (c) A short episode? or
- (d) “Till Death Us Do Part”?



To be curious. This is the sprout of science.
Observe, check and think.
This is the stem of science.
And finally the riddle is solved.
This is the flower of science

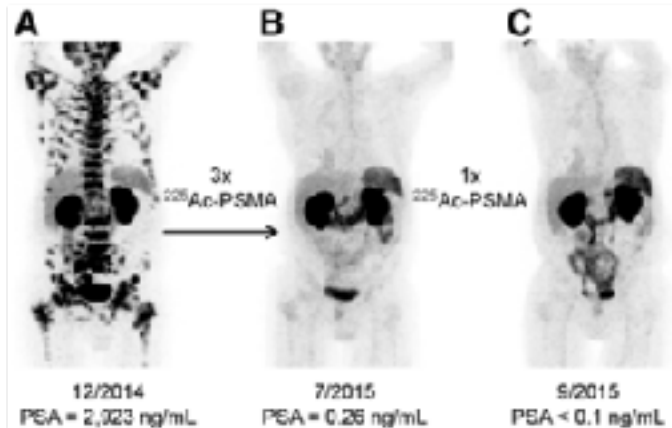
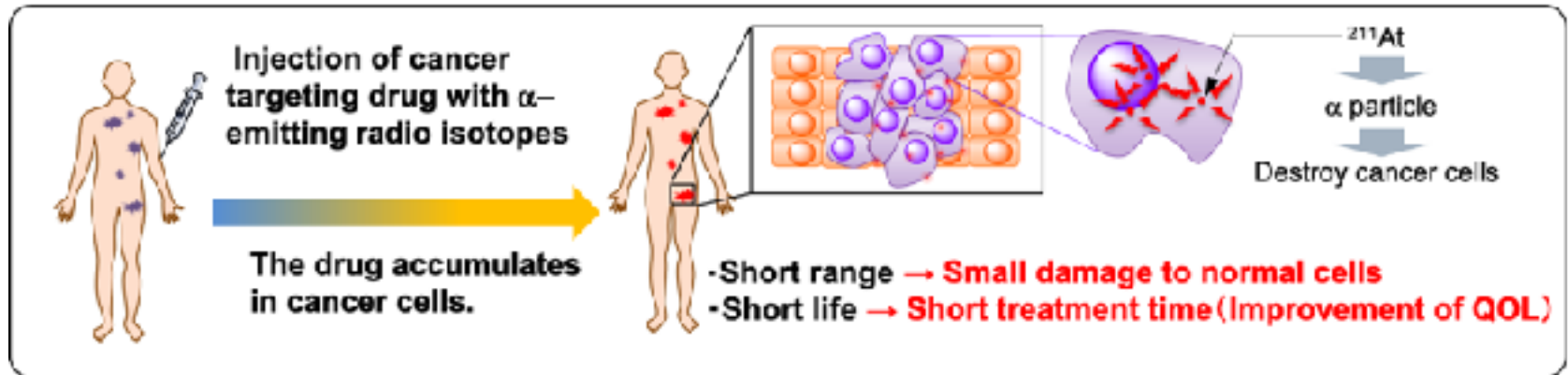
Nambu Colloquium; Prof. Yoichiro Nambu,
<https://www.phys.sci.osaka-u.ac.jp/nambu/#Section1>



Physics is the study of the fundamental laws of all natural phenomena. Knowing this, you should be able to understand any phenomenon in principle. Studying physics is a way of increasing our common sense and **enriching our lives.**

Applications of Nuclear Physics

Targeted Alpha Therapy (TAT)



Kratochwil et al., J Nucl Med. 2016 , 57, 1941-1944.

TAT is a systemic treatment using injectable drugs and can be used for advanced cancer with multiple metastases.

Significant extension of healthy life expectancy by realizing a society with zero cancer deaths

Can we think - What does hadron physics do?

The 21st International Conference on Hadron Spectroscopy and Structure



Toyonaka Campus, Osaka University, Japan 27 - 31, Mar. 2025

Many thanks to LOC,
Hua-Xing and more
Students, Secretaries.

See you next time in Korea (tentative)
2026