

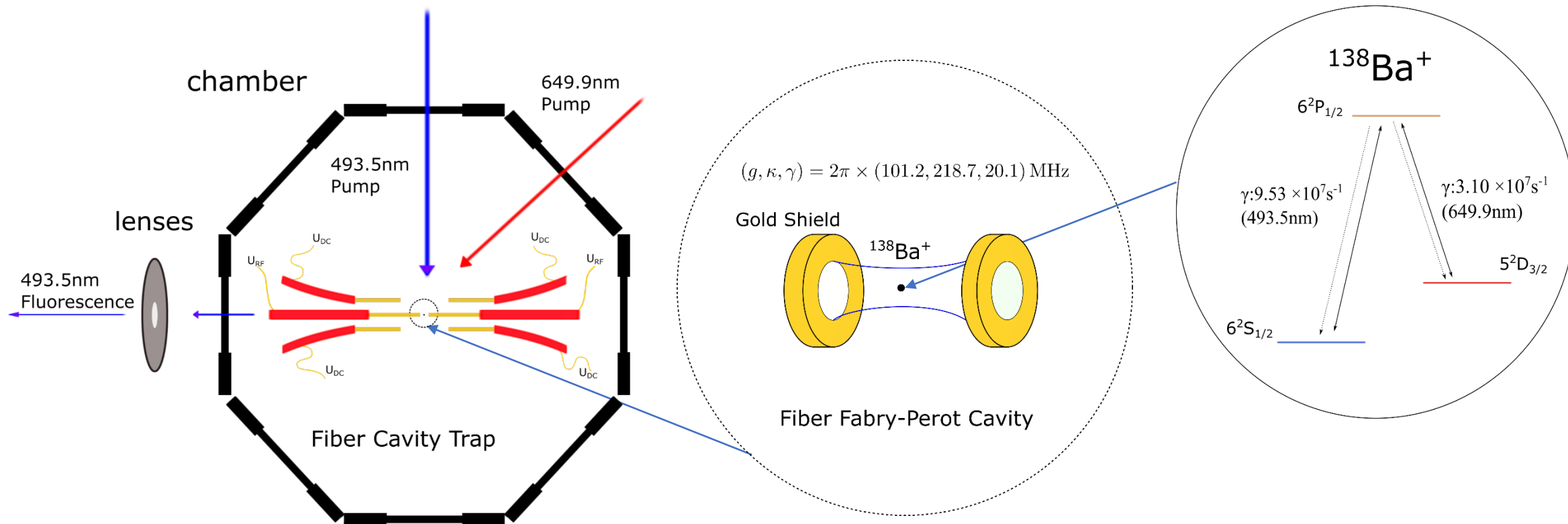
Fiber-based ion trap integrated with a high-finesse fiber cavity



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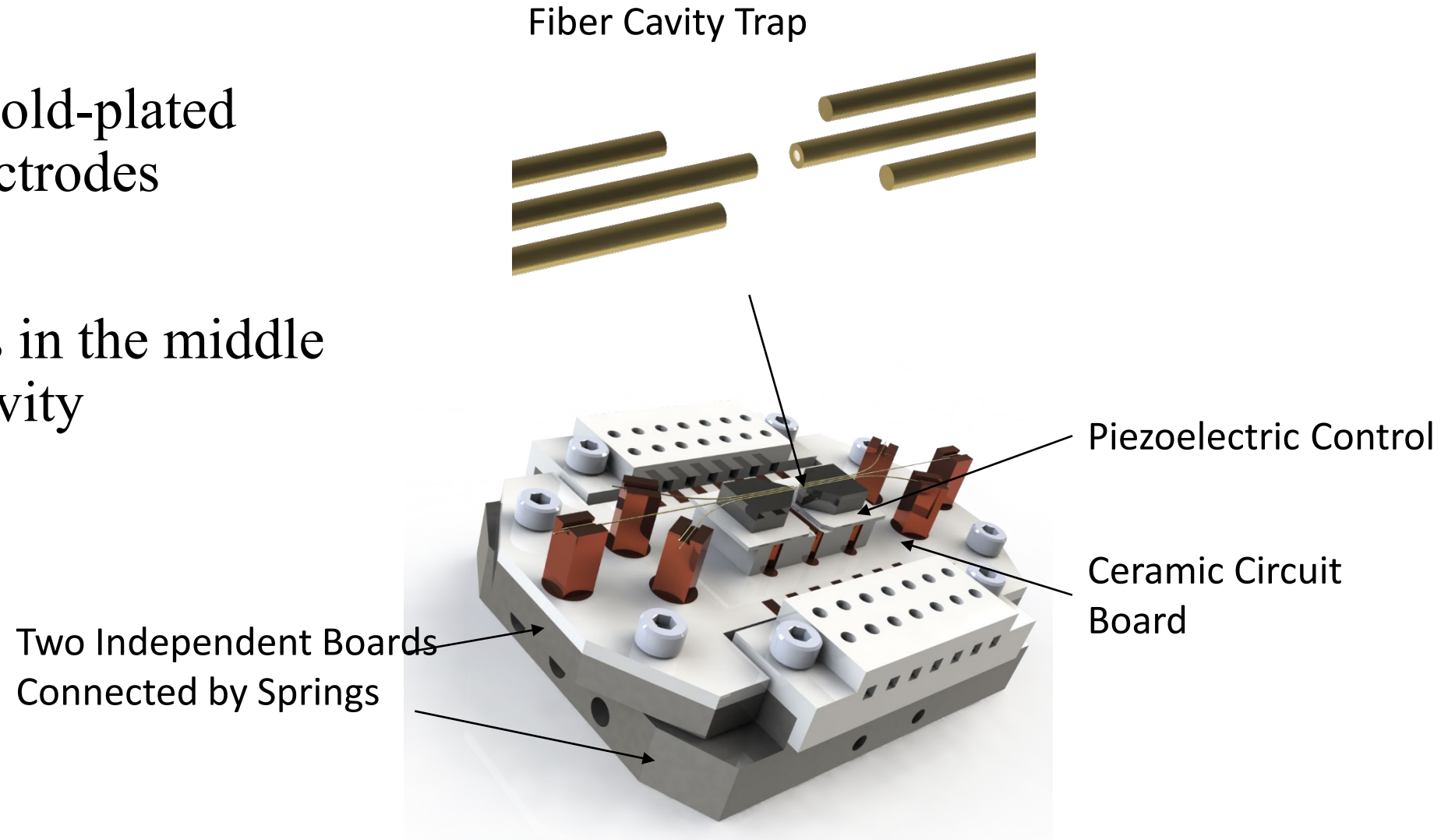


Introduction

- Design an fiber-based ion trap integrated with a high-finesse fiber cavity
- Optimize the parameters of the fiber cavity
- Manufacture the entire system

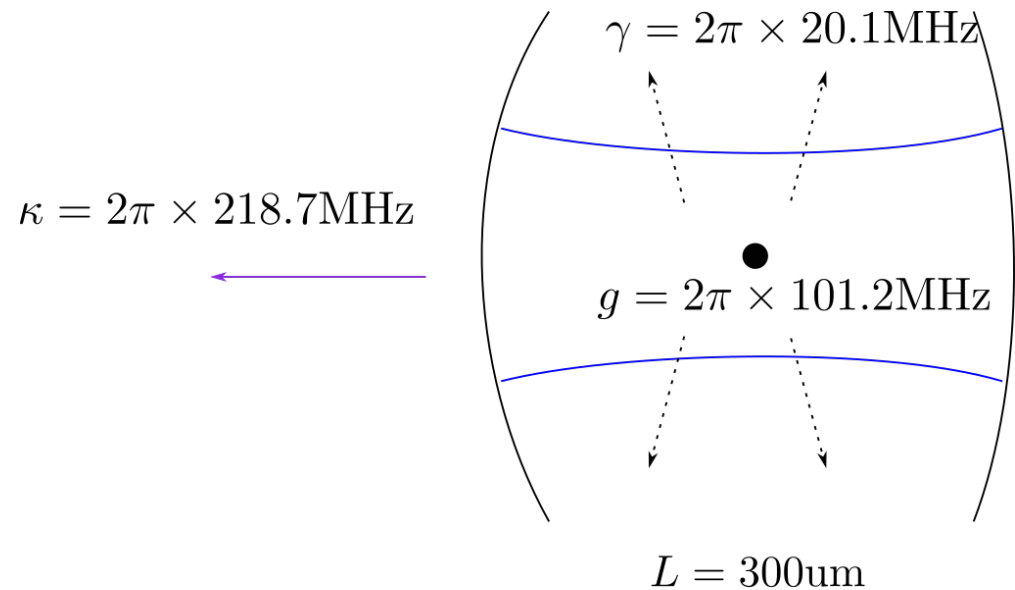
Structure

- three pairs of gold-plated fibers form electrodes
- A pair of fibers in the middle form a fiber cavity

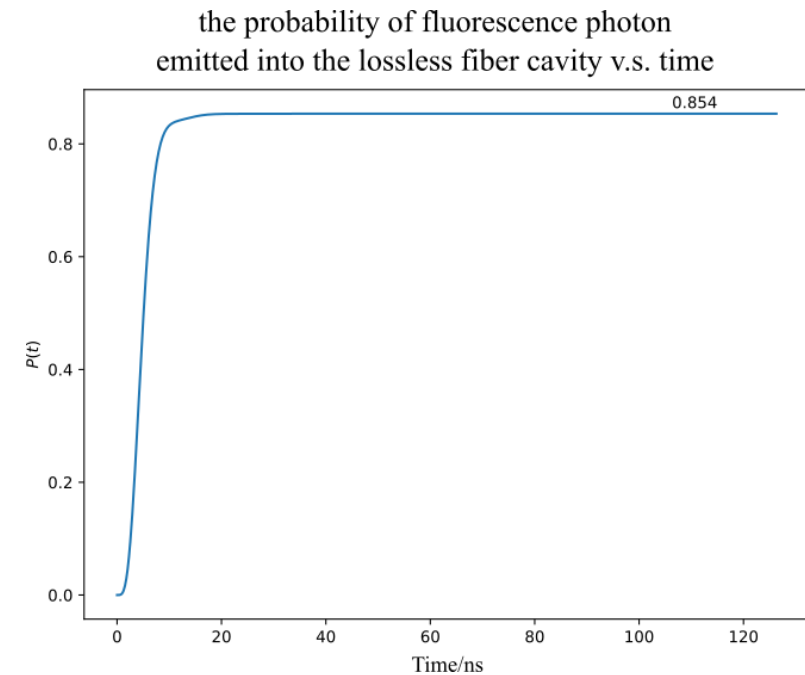


Analysis

- The 493.5nm photons generated by 649.9nm Raman excitation are collected by the fiber Fabry-Perot cavity
- Optimize the parameters of the fiber Fabry-Perot cavity to improve photon collection efficiency.



Fiber Fabry-Perot Cavity $F \approx 1000$



Outlook

- Make this system smaller to reduce losses
- This system can be used as a good node of quantum network
- This system can also be used to generate cluster state

References:

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