

## Yi Ren

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### EDUCATION

- Master's Degree in Chemistry,** Aug, 2020– August,2022  
Arizona State University, School of Molecular Sciences,  
Advisor: Ariel Anbar, Gwyneth Gordon, Committee: Everett Shock, Kelly Knudson
- Bachelor's Degree in Environmental Chemistry (BS),** Aug, 2016– May,2020  
Arizona State University, School of Molecular Sciences,

### INTERNSHIP & WROK EXPERIENCE

- ◇ Research Specialist Sr at Central Arizona–Phoenix Long-Term Ecological Research, Arizona State University August, 2023 – Current
- ◇ Arizona State University Metals, Environmental and Terrestrial Analytical Laboratory. Tempe, AZ  
Volunteer Lab Aide (10hrs/week) Feb, 2020 – Aug, 2020  
Volunteer Lab Aide (35hrs/week) July, 2022 – Aug, 2023
- ◇ Internship, Hebei Keying Environmental Testing Service Co., Ltd. Shijiazhuang, China  
June, 2017

### RESEARCH PROJECTS AND RESEARCH EXPERIENCES

#### Graduate Degree Research Projects:

- ◇ **Method Development of Analyzing Hg Concentration In Human Bones Samples With Q-ICP-MS Coupled with Liquid-Vapor Separator**  
Project Advisor: Gwyneth Gordon, Ariel Anbar  
Analyses Funded by National Institute of Justice  
Presented at 2022 Winter Conference of Plasma Spectrochemistry  
Link of presentation: <https://youtu.be/JyRI4NK7zHA>
- ◇ **Intra-individual and Inter-individual Variation in Mercury Concentrations in Modern Human Skeletons: Impact of Dental Amalgam**  
Project Advisor: Gwyneth Gordon, Ariel Anbar  
Analyses Funded by National Institute of Justice

#### Other Research Projects and Experiences:

- ◇ **Use Radiogenic Strontium Isotopic as a Calcium tracer in Chicken Soft Tissue, and Eggshell**  
Research Assistant August, 2023 – Present  
Arizona State University, University of Arkansas

#### **Skills:**

Sample preparation and microwave digestion for radiogenic strontium isotopic analysis.  
Operating Thermo Fisher Neptune MC-ICP-MS.

- ◇ **Human Bone Carbon, Oxygen and Nitrogen Stable Isotope Analysis**  
Research Assistant July, 2022 – Present  
Project Advisor: Gwyneth Gordon  
Arizona State University

**Skills:**

Bone carbonate and collagen sample preparation.  
Operating Thermo Scientific MAT 253 mass spectrometer with GasBench and Heating Block

◇ **Human Hair, Bones, and Teeth Trace Metal Analysis**

Undergraduate Research Assistant January, 2020  
Project Advisor: Gwyneth Gordon  
METAL Lab, Arizona State University

**Skills:**

Working in a metal clean lab environment  
Hair, and bone sample preparation and acid digestion for trace metal analysis.  
Column Chromatography  
Operation ICap-Q Mass Spectrometer

◇ **Yellowstone National Park Hot Spring Water Analysis**

Undergraduate Research Assistant September, 2019  
Project Advisor: Everett Shock  
GEOPIG, Arizona State University

**Skills:**

Ion Chromatography sample preparation  
Operating Ion Chromatography (IC) system.

◇ **Yellowstone National Park Hot Springs Gas Data Processing**

Undergraduate Research Assistant October, 2019  
Project Advisor: Everett Shock  
GEOPIG, Arizona State University

**Skills:**

Pressure and elevation calculation.  
Thermodynamics calculation using R and Jupyter notebook.  
Operating Reducing Compound Photometer (RCP), and Gas Chromatography (GC).

◇ **Organic and Inorganic Carbon Analysis of Yellowstone National Park Hot Spring Samples**

Undergraduate Research Assistant December, 2019  
Project Advisor: Everett Shock  
GEOPIG, Arizona State University

**Skills:**

Sample preparation  
Operating Total Organic Carbon Analyzer (TOC) and Flame Ionization Detector (FID).

**CONFERENCES AND PUBLICATIONS**◇ **2022 Winter Conference on Plasma Spectrochemistry**

Jan, 2022

Topic: Mercury concentration analysis in human bone samples using iCAP-Q quadrupole mass spectrometer.  
Link of presentation: <https://youtu.be/JyRI4NK7zHA>

◇ 2023 Determining mercury concentration in human bone by ICP-MS coupled with a liquid-vapor separator. Yi Ren, Ariel Anbar, Tyler Goepfert, Gwyneth Gordon. *Journal of Analytical Atomic Spectrometry*. (In peer review. July, 2023)◇ (In prep) Intra-individual and Inter-individual Variation in Mercury Concentrations in Modern Human Skeletons: Impact of Dental Amalgam. Yi Ren... Gwyneth Gordon, et al. *Proceedings of the National Academy of Sciences of the United States of America*.

## **TECHNICAL SKILLS**

Hg concentration analysis with Q-ICP-MS coupled with liquid-vapor separator.  
Sedimentary rock sample preparation for mercury isotopic analysis.  
Skeletal sample preparation for trace elements, mercury concentration, carbon isotopes, oxygen isotopes, and collagen analysis.  
Working with compressed gases.  
Bone samples mechanical cleaning, chemical cleaning, and powdering.  
Sample preparation for microwave digestion.  
Chicken soft tissue and eggshell sample preparation for strontium isotopic analysis.  
Working in Biosafety Level 2 laboratories.  
Working in trace metal clean lab environment.  
Ion exchange chromatography for isotopic analysis.  
Software including Qtegra, Logger Pro, Mathematica, R-Studio, Microsoft Office, and Jupyter Notebook.

### **Have knowledge of the principles and operation of the following instruments:**

High Performance Liquid Chromatography (HPLC)  
Ion Chromatography (IC)  
Stimulated Raman Spectroscopy (SRS)  
Inductively Coupled Plasma - Optical Emission Spectrometer (ICP-OES)  
Quadrupole Inductively Coupled Plasma Mass Spectrometer (Q-ICP-MS)  
Multicollector-Inductively Coupled Plasma Mass Spectrometer (MC-ICP-MS)  
Independent user of iCAP-Q Quadrupole Mass Spectrometer  
Atomic Absorption Spectrophotometer (AAS)  
Total Organic Carbon Analyzer (TOC)  
Flame Ionization Detector (FID)  
Gas Bench Isotopic Ratio Mass Spectrometer (IRMS)  
Reducing Compound Photometer (RCP)  
Thermo Scientific MAT 253 mass spectrometer  
GasBench and Heating Block CEM Mars 5  
Microwave Digestion System

## **AWARDS**

- ◇ **2019 Spring Semester Dean's List**  
Arizona State University
- ◇ **2019 Fall Semester Dean's List**  
Arizona State University
- ◇ **2020 Spring Semester Dean's List**  
Arizona State University
- ◇ **2020 Sync Grad Award**  
Arizona State University