# FAN WU

## CONTACT INFORMATION

California Institute of Technology
Division of the Humanities and Social Sciences

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## EDUCATION

**California Institute of Technology**
Ph.D., Economics — September 2020 – June 2025 (expected)
**Tsinghua University**
M.S., Finance, — 2019
**Peking University**
B.S., Physics, — 2017

## RESEARCH FIELDS

Microeconomic Theory: information acquisition, information design, and mechanism design.

## REFERENCES

Omer Tamuz
Professor of Economics and Mathematics
California Institute of Technology
omertamuz@gmail.com

Luciano Pomatto
Professor of Economics
California Institute of Technology
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Alexander W. Bloedel
Assistant Professor of Economics
University of California, Los Angeles
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Peter Caradonna
Assistant Professor of Economics
California Institute of Technology
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## JOB MARKET PAPERS

Incentivizing Information Acquisition

**Abstract**: I study a principal-agent model in which a principal hires an agent to collect information about an unknown continuous state. The agent acquires a signal whose distribution is centered around the state, controlling the signal's precision at a cost. The principal observes neither the precision nor the signal, but rather, using transfers that can depend on the state, incentivizes the agent to choose high precision and report the signal truthfully. I identify a sufficient and necessary condition on the agent's information structure which ensures that there exists an optimal transfer with a simple cutoff structure: the agent receives a fixed prize when his prediction is close enough to the state and receives nothing otherwise. This condition is mild and applies to all signal distributions commonly used in the literature.

Estimating Nonseparable Selection Models: A Functional Contraction Approach, with Yi Xin

**Abstract**: We propose a new method for estimating nonseparable selection models. We show that, given the selection rule and the observed selected outcome distribution, the potential outcome distribution can be characterized as the fixed point of an operator, and we prove that this operator is a functional contraction. We propose a two-step semiparametric maximum likelihood estimator to estimate the selection model and the potential outcome distribution. The consistency and asymptotic normality of the estimator are established. Our approach performs well in Monte Carlo simulations and is applicable in a variety of empirical settings where only a selected sample of outcomes is observed. Examples include consumer demand models with only transaction prices, auctions with incomplete bid data, and Roy models with data on accepted wages.

## WORKING PAPERS

Incentivizing Information Acquisition

Estimating Nonseparable Selection Models: A Functional Contraction Approach, with Yi Xin

Competing under Information Heterogeneity: Evidence from Auto Insurance, with Marco Cosconati, Yi Xin, Yizhou Jin

## PUBLICATIONS

Implementing Randomized Allocation Rules with Outcome-Contingent Transfer, with Yi Liu,
**Journal of Economic Theory**, 2024

Linear Riley Equilibria in Quadratic Signaling Games, with Xi Weng,
**Journal of Economic Theory**, 2023

Quantum phase space with a basis of Wannier functions, with Yuan Fang and Biao Wu,
**Journal of Statistical Mechanics**, 2018.

## TEACHING/WORKING EXPERIENCE

Teaching Assistant (for Prof. Jaksa Cvitanic), MA 003 Probability Theory, Winter 2023
Teaching Assistant (for Prof. Andrew Sinclair), BEM 114 Hedge Fund, Spring 2023
Teaching Assistant (for Prof. Andrew Sinclair), BEM 109 Understanding China through Finance, Fall 2023
Teaching Assistant (for Prof. Antonio Rangel), EC 11 Introduction to Economics, Winter 2024

## TECHNICAL STRENGTHS

Computer Languages: R, Matlab
Software & Tools: LaTeX, Excel