## Fabian Lander

## Richard-Lehmann-Straße 57, 04275 Leipzig, Germany

 $+49\ 176\ 22135158 \quad {\rm fabian.lander@mis.mpg.de}$ 

PhD Mathematics 2024 - Preset   Max Planck Institute for Mathematics in the Sciences, Leipzig, Research Focus: Affine measured foliations and dilation structures   Advisor: JProf. Dr. James Farre 2021–20.   Miceliberg University, GPA: 1.3 2021–20.   Thesis: Vertical Foliations of Triangulable Dilation Tori 2021–20.   Heidelberg University, GPA: 1.8 2017–20.   Heidelberg University, GPA: 1.8 2017–20.   Heidelberg University, GPA: 1.8 2022–20.   Thesis: Polyogonal Symplectic Billiards 2022–20.   Advisor: Prof. Dr. Peter Albers 2022–20.   Work Experience 2022–20.   Research Assistant (University of Heidelberg/HEGL) 2022–20.   Developed real-time visualization tools for flat surfaces using WebGL/Three.js 2021–20.   Oclaborated on outreach events for HEGL Student Seminar 2022–20.   Developed high-performance symplectic billiard dynamics simulator (C++/OpenGL) 2021–20.   Co-authored a paper on periodic orbits in symplectic billiards 2021–20.   Developed high-performance symplectic billiards 2020–20.   Conducted tutorials in Real Analysis and Measure Theory for 300+ students, delivering four lessons per week. 2020–20.   Technical Expertise 202	Education	
MSc Mathematics 2021-20   Heidelberg University, GPA: 1.3 2017-20   Heidelberg University, GPA: 1.3 2017-20   Heidelberg University, GPA: 1.8 2017-20   Heidelberg University, GPA: 1.8 2017-20   Heidelberg University, GPA: 1.8 2022-20   Developed real-time visualization tools for flat surfaces using WebGL/Three.js 2022-20   Developed real-time visualization tools for flat surfaces using WebGL/Three.js 2022-20   Developed real-time visualization tools for flat surfaces using WebGL/Three.js 2022-20   Developed real-time visualization tools for flat surfaces using WebGL/Three.js 2022-20   Developed real-time visualization tools for flat surfaces using WebGL/Three.js 2022-20   Developed real-time visualization tools for flat surfaces using WebGL/Three.js 2021-20   Developed ligh-performance symplectic billiard symmics simulator (C++/OpenGL) 2021-20   Co-authored a paper on periodic orbits in symplectic billiards 2020-20   Conducted tutorials in Real Analysis and Measure Theory for 300+ students, delivering four lessons per week. 2020-20   Edenical Expertise 2020-20   Languages: German (Native), English (Fluent) Programming: C++, GLSL, Python, JavaScript, R   Tools: OpenGL, THREE.js, Git, Linux, MTEX <td><b>PhD Mathematics</b> Max Planck Institute for Mathematics in the Sciences, Leipzig, Research Focus: Affine measured foliations and dilation structures Advisor: JProf. Dr. James Farre</td> <td>2024–Present</td>	<b>PhD Mathematics</b> Max Planck Institute for Mathematics in the Sciences, Leipzig, Research Focus: Affine measured foliations and dilation structures Advisor: JProf. Dr. James Farre	2024–Present
BSc Mathematics 2017-20   Heidelberg University, GPA: 1.8 2017-20   Thesis: Polygonal Symplectic Billiards Advisor: Prof. Dr. Peter Albers   Work Experience 2022-20   Research Assistant (University of Heidelberg/HEGL) 2022-20   Developed real-time visualization tools for flat surfaces using WebGL/Three.js 2022-20   Supervised student projects in geometric computing 2021-20   Collaborated on outreach events for HEGL Student Seminar 2021-20   Research Assistant (University of Heidelberg/SFB 191) 2021-20   Developed high-performance symplectic billiard dynamics simulator (C++/OpenGL) 2020-20.   Co-authored a paper on periodic orbits in symplectic billiards 2020-20.   Conducted tutorials in Real Analysis and Measure Theory for 300+ students, delivering four lessons per week. 2020-20.   Technical Expertise 2020-20.   Languages: German (Native), English (Fluent) Programming: C++, GLSL, Python, JavaScript, R   Prools: OpenGL, THREE.js, Git, Linux, I&TEX 2021-20.   Symplectic billiards for pairs of polygons, with Peter Albers 2020-20.   Sclected Projects 2020-20.   Symplectic billiards Simulator C++/OpenG   High-performance research tool for dynamical systems	MSc Mathematics Heidelberg University, GPA: 1.3 Thesis: Vertical Foliations of Triangulable Dilation Tori Advisor: JProf. Dr. James Farre	2021–2023
Work Experience 2022-20   Research Assistant (University of Heidelberg/HEGL) 2022-20   Developed real-time visualization tools for flat surfaces using WebGL/Three.js 2022-20   Supervised student projects in geometric computing Collaborated on outreach events for HEGL Student Seminar   Research Assistant (University of Heidelberg/SFB 191) 2021-20   Developed high-performance symplectic billiard dynamics simulator (C++/OpenGL) 2020-20   Co-authored a paper on periodic orbits in symplectic billiards Implemented discrete dynamical system visualizations   Teaching Assistant in Analysis 1-3 (University of Heidelberg) 2020-20   Conducted tutorials in Real Analysis and Measure Theory for 300+ students, delivering four lessons per week. 2020-20   Technical Expertise 2020-20   Languages: German (Native), English (Fluent) Programming: C++, GLSL, Python, JavaScript, R   Prools: OpenGL, THREE.js, Git, Linux, LATEX Publications and Preprints   Symplectic billiards for pairs of polygons, with Peter Albers 2020-20   and Jannik M. Westermann, arXiv:2402.12244 (2024). 37 pages. Submitted. 2040-20   Selected Projects 2040-20   Symplectic Billiards Simulator C++/OpenC   High-performance research tool for dynamical systems analysis 31404050000000000	<b>BSc Mathematics</b> Heidelberg University, GPA: 1.8 Thesis: Polygonal Symplectic Billiards Advisor: Prof. Dr. Peter Albers	2017–2021
Research Assistant (University of Heidelberg/HEGL) 2022-20   Developed real-time visualization tools for flat surfaces using WebGL/Three.js 2022-20   Supervised student projects in geometric computing 2021-20   Collaborated on outreach events for HEGL Student Seminar 2021-20   Research Assistant (University of Heidelberg/SFB 191) 2021-20   Developed high-performance symplectic billiard dynamics simulator (C++/OpenGL) Co-authored a paper on periodic orbits in symplectic billiards   Implemented discrete dynamical system visualizations 2020-20   Conducted tutorials in Real Analysis 1-3 (University of Heidelberg) 2020-20   Conducted tutorials in Real Analysis and Measure Theory for 300+ students, delivering four lessons per week. 2020-20   Technical Expertise 2020-20   Languages: German (Native), English (Fluent) Programming: C++, GLSL, Python, JavaScript, R   Prools: OpenGL, THREE.js, Git, Linux, IATEX Publications and Preprints   Symplectic billiards for pairs of polygons, with Peter Albers and Jannik M. Westermann, arXiv:2402.12244 (2024). 37 pages. Submitted. Selected Projects   Symplectic Billiards Simulator C++/OpenG   High-performance research tool for dynamical systems analysis github.com/SiegfriedFabian/Billiards JavaScript/WebG   Raymarching Engine JavaScript/WebG	Work Experience	
Research Assistant (University of Heidelberg/SFB 191) 2021–20   Developed high-performance symplectic billiard dynamics simulator (C++/OpenGL) Co-authored a paper on periodic orbits in symplectic billiards   Implemented discrete dynamical system visualizations 2020–20   Conducted tutorials in Real Analysis 1-3 (University of Heidelberg) 2020–20   Conducted tutorials in Real Analysis and Measure Theory for 300+ students, delivering four lessons per week. 2020–20   Technical Expertise 2020–20   Languages: German (Native), English (Fluent) Programming: C++, GLSL, Python, JavaScript, R   Prools: OpenGL, THREE.js, Git, Linux, IATEX Publications and Preprints   Symplectic billiards for pairs of polygons, with Peter Albers and Jannik M. Westermann, arXiv:2402.12244 (2024). 37 pages. Submitted. C++/OpenC   High-performance research tool for dynamical systems analysis github.com/SiegfriedFabian/Billiards JavaScript/WebC   Raymarching Engine JavaScript/WebC   Interactive visualization of locally flat surfaces JavaScript/WebC	Research Assistant (University of Heidelberg/HEGL) Developed real-time visualization tools for flat surfaces using WebGL/Three.js Supervised student projects in geometric computing Collaborated on outreach events for HEGL Student Seminar	2022–2024
Teaching Assistant in Analysis 1-3 (University of Heidelberg) 2020-20.   Conducted tutorials in Real Analysis and Measure Theory for 300+ students, delivering four lessons per week. 2020-20.   Technical Expertise 2020-20.   Languages: German (Native), English (Fluent) Programming: C++, GLSL, Python, JavaScript, R   Tools: OpenGL, THREE.js, Git, Linux, IATEX Publications and Preprints   Symplectic billiards for pairs of polygons, with Peter Albers and Jannik M. Westermann, arXiv:2402.12244 (2024). 37 pages. Submitted. Selected Projects   Symplectic Billiards Simulator C++/OpenC   High-performance research tool for dynamical systems analysis github.com/SiegfriedFabian/Billiards JavaScript/WebC   Raymarching Engine JavaScript/WebC   Interactive visualization of locally flat surfaces github com/hegi-lab/Independent-SS22-Baymarching-Flat-Surfaces	Research Assistant (University of Heidelberg/SFB 191) Developed high-performance symplectic billiard dynamics simulator (C++/Open Co-authored a paper on periodic orbits in symplectic billiards Implemented discrete dynamical system visualizations	<i>2021–2024</i> GL)
Technical Expertise   Languages: German (Native), English (Fluent)   Programming: C++, GLSL, Python, JavaScript, R   Tools: OpenGL, THREE.js, Git, Linux, IATEX   Publications and Preprints   Symplectic billiards for pairs of polygons, with Peter Albers   and Jannik M. Westermann, arXiv:2402.12244 (2024). 37 pages. Submitted.   Selected Projects   Symplectic Billiards Simulator   High-performance research tool for dynamical systems analysis github.com/SiegfriedFabian/Billiards   Raymarching Engine JavaScript/WebC   Interactive visualization of locally flat surfaces   github com/begl-lab/Independent-SS22-Baymarching-Flat-Surfaces	Teaching Assistant in Analysis 1-3 (University of Heidelberg) Conducted tutorials in Real Analysis and Measure Theory for 300+ students, delivering four lessons per week.	2020–2022
Languages: German (Native), English (Fluent)   Programming: C++, GLSL, Python, JavaScript, R   Tools: OpenGL, THREE.js, Git, Linux, IATEX   Publications and Preprints   Symplectic billiards for pairs of polygons, with Peter Albers   and Jannik M. Westermann, arXiv:2402.12244 (2024). 37 pages. Submitted.   Selected Projects   Symplectic Billiards Simulator   High-performance research tool for dynamical systems analysis   github.com/SiegfriedFabian/Billiards   Raymarching Engine   Interactive visualization of locally flat surfaces   github com/hegl-lab/Independent-SS22-Baymarching-Flat-Surfaces	Technical Expertise	
Publications and Preprints   Symplectic billiards for pairs of polygons, with Peter Albers   and Jannik M. Westermann, arXiv:2402.12244 (2024). 37 pages. Submitted.   Selected Projects   Symplectic Billiards Simulator C++/OpenC   High-performance research tool for dynamical systems analysis JavaScript/WebC   Interactive visualization of locally flat surfaces JavaScript/WebC	Languages: German (Native), English (Fluent) Programming: C++, GLSL, Python, JavaScript, R Tools: OpenGL, THREE.js, Git, Linux, IAT <sub>E</sub> X	
Symplectic billiards for pairs of polygons, with Peter Albers   and Jannik M. Westermann, arXiv:2402.12244 (2024). 37 pages. Submitted.   Selected Projects   Symplectic Billiards Simulator C++/OpenC   High-performance research tool for dynamical systems analysis C++/OpenC   github.com/SiegfriedFabian/Billiards JavaScript/WebC   Interactive visualization of locally flat surfaces github com/hegl-lab/Independent-SS22-Baymarching-Flat-Surfaces	Publications and Preprints	
Selected Projects   Symplectic Billiards Simulator C++/OpenC   High-performance research tool for dynamical systems analysis C++/OpenC   github.com/SiegfriedFabian/Billiards JavaScript/WebC   Raymarching Engine JavaScript/WebC   Interactive visualization of locally flat surfaces github com/hegl-lab/Independent-SS22-Baymarching-Flat-Surfaces	Symplectic billiards for pairs of polygons, with Peter Albers and Jannik M. Westermann, arXiv:2402.12244 (2024). 37 pages. Submitted.	
Symplectic Billiards Simulator C++/OpenC   High-performance research tool for dynamical systems analysis C++/OpenC   github.com/SiegfriedFabian/Billiards JavaScript/WebC   Raymarching Engine JavaScript/WebC   Interactive visualization of locally flat surfaces github com/hegl-lab/Independent-SS22-Baymarching-Flat-Surfaces	Selected Projects	
Raymarching EngineJavaScript/WebCInteractive visualization of locally flat surfacesjavaScript/WebCgithub com/hegl-lab/Independent-SS22-Baymarching-Flat-SurfacesjavaScript/WebC	Symplectic Billiards Simulator High-performance research tool for dynamical systems analysis github.com/SiegfriedFabian/Billiards	C++/OpenGL
Sindonom/ negr iab/ independent 5522-itayinarening-i iat-Surfaces	<b>Raymarching Engine</b> Interactive visualization of locally flat surfaces github.com/hegl-lab/Independent-SS22-Raymarching-Flat-Surfaces	JavaScript/WebGL