

European Vacation Placements: Reports 2019

Below are reports on the Summer Placements provided by students who participated in the scheme in 2019.

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ETH, Zurich, Switzerland

Report 1

1. General		
Placement Location	ETH Zürich, Zürich, Switzerland	
Arrival and Departure Dates	07/07/19 – 01/09/19	
No. of working days spent at Institution	40	
2. Financial		
Cost and method of return travel from the UK (£)	By air: £250 total (outbound NCL – CDG – ZRH; return ZRH – AMS – NCL)	
Total cost of daily travel to and from Institution	CHF 3.10 (£2.54) using a CHF 62 monthly pass	
Total cost of accommodation (say if provided free)	CHF 1016	
Value of Armourers & Brasiers bursary	£1450	
Total received from College	£300	
Total received from Institution	CHF 1100	
3. Accommodation		
Accommodation address	Bächlerstrasse 44, 8046	
Type of Accommodation	Shared student flat	
Distance from Institution	2 km	
Quality of accommodation	on a scale of 1 (low) to 10 (high)	7
Quality of facilities	on a scale of 1 (low) to 10 (high)	8
Convenience of location	on a scale of 1 (low) to 10 (high)	9
4. Research Project		
Title of Research Project	Complex characterisation of phase transformations in the Cu-Au-Ag system	
Written Report submitted to host institution	Yes	
Experimental Techniques used:	Tensile stage operation, rapid thermal annealing (RTA), transmission electron microscopy (TEM) with supervision	
Interest level of project	on a scale of 1 (low) to 10 (high)	6
Quality of support provided	on a scale of 1 (low) to 10 (high)	8
Interaction with other researchers	on a scale of 1 (low) to 10 (high)	10

Report 2

1. General		
Placement Location	ETH Zürich	
Arrival and Departure Dates	30/07/19 – 24/08/19	

No. of working days spent at Institution	40	
2. Financial		
Cost and method of return travel from the UK (£)	£350	
Total cost of daily travel to and from Institution	Monthly travel pass x2 = 124 CHF	
Total cost of accommodation (say if provided free)	1036 CHF	
Value of Armourers & Brasiers bursary	£1415	
Total received from College	£500	
Total received from Institution	1100 CHF	
3. Accommodation		
Accommodation address	46 Bächlerstrasse	
Type of Accommodation	WOKO accommodation	
Distance from Institution	5 minute bus journey to ETH Hönggerberg	
Quality of accommodation	on a scale of 1 (low) to 10 (high)	8
Quality of facilities	on a scale of 1 (low) to 10 (high)	9
Convenience of location	on a scale of 1 (low) to 10 (high)	7 (30 minute bus and tram from centre of town, although very close to department)
4. Research Project		
Title of Research Project	Investigation into the Rolling of a lean Mg-Zn-Ca-Zr alloy and Assessment and Comparison of the Degradation Performance of different Mg Alloys	
Written Report submitted to host institution	Yes	
Experimental Techniques used:	Mount, grind and polish of metallurgical samples, optical microscopy, rolling using hydraulic rolling machine, corrosion apparatus, SEM	
Interest level of project	on a scale of 1 (low) to 10(high)	7
Quality of support provided	on a scale of 1 (low) to 10(high)	7
Interaction with other researchers	on a scale of 1 (low) to 10(high)	9

Report 3

1. General		
Placement Location	ETH Zürich	
Arrival and Departure Dates	28/06/19-28/08/19	
No. of working days spent at Institution	43	
2. Financial		

Cost and method of return travel from the UK (£)	£225 for return flight	
Total cost of daily travel to and from Institution	124 CHF (Two month ZVV travelcard within the city of Zürich)	
Total cost of accommodation (say if provided free)	900 CHF	
Value of Armourers & Brasiers bursary	£1415.00	
Total received from College	£200	
Total received from Institution	1107 CHF	
3. Accommodation		
Accommodation address	Bächlerstrasse 46, 8046, Zürich	
Type of Accommodation	Student Apartment (Woko)	
Distance from Institution	5 minutes by bus/ 25 minute walk	
Quality of accommodation	on a scale of 1 (low) to 10 (high)	9
Quality of facilities	on a scale of 1 (low) to 10 (high)	8
Convenience of location	on a scale of 1 (low) to 10 (high)	9
4. Research Project		
Title of Research Project	Current induced domain wall motion in insulating magnetic garnets	
Written Report submitted to host institution	No. A presentation was given to the group at the end of the placement.	
Experimental Techniques used:	Spatially resolved magneto optic Kerr effect (MOKE), AFM, wire bonding, optical microscopy, ultrasonic cleaning, use of LabVIEW software.	
Interest level of project	on a scale of 1 (low) to 10(high)	10
Quality of support provided	on a scale of 1 (low) to 10(high)	9
Interaction with other researchers	on a scale of 1 (low) to 10(high)	10

EMPA, Thun, Switzerland

Report 1

1. General		
Placement Location	EMPA, Thun, Switzerland	
Arrival and Departure Dates	9/07/19 to 13/09/19	
No. of working days spent at Institution	50	
2. Financial		
Cost and method of return travel from the UK (£)	£250.00, Coach, Flights, Trains	
Total cost of daily travel to and from Institution	(free) – occasional bus fare of 3CHF (£2.40) for single trip	

Total cost of accommodation (say if provided free)	Provided free	
Value of Armourers & Brasiers bursary	None	
Total received from College	None	
Total received from Institution	1,500.00 CHF (£1,200.00) over ten weeks	
3. Accommodation		
Accommodation address	Mönchstrasse 37, 3602 Thun, Switzerland	
Type of Accommodation	Student housing/hotel	
Distance from Institution	50 minute walk, 15 minute cycle (2.5 miles)	
Quality of accommodation	on a scale of 1 (low) to 10 (high)	8
Quality of facilities	on a scale of 1 (low) to 10 (high)	7
Convenience of location	on a scale of 1 (low) to 10 (high)	7
4. Research Project		
Title of Research Project	Pillar Splitting Fracture Toughness Without Use of Focused Ion Beam	
Written Report submitted to host institution	Yes	
Experimental Techniques used:	SEM, Micro-indentation using Alemnis indenter, ABAQUS FEA modelling, MATLAB, Focused Ion Beam milling	
Interest level of project	on a scale of 1 (low) to 10(high)	8
Quality of support provided	on a scale of 1 (low) to 10(high)	9
Interaction with other researchers	on a scale of 1 (low) to 10(high)	5

Report 2

1. General		
Placement Location	EMPA, Thun, Switzerland	
Arrival and Departure Dates	1st July – 13th September 2019	
No. of working days spent at Institution	52	
2. Financial		
Cost and method of return travel from the UK (£)	Return flight London Heathrow – Zurich with Swiss airways £159 plus return train Zurich – Thun £98 (without half fare travel card)	
Total cost of daily travel to and from Institution	Free – borrowed bike from professor	
Total cost of accommodation (say if provided free)	Provided free by host	
Value of Armourers & Brasiers bursary	None	
Total received from College	None	
Total received from Institution	£547 per month	
3. Accommodation		

Accommodation address	Hotelfachschule, Mönchstrasse 37, 3602 Thun, Switzerland	
Type of Accommodation	Single, ensuite room in school building, with shared kitchen	
Distance from Institution	4.3 km (approx. 15 mins cycle or 30 mins on bus)	
Quality of accommodation	on a scale of 1 (low) to 10 (high)	9
Quality of facilities	on a scale of 1 (low) to 10 (high)	8
Convenience of location	on a scale of 1 (low) to 10 (high)	9
4. Research Project		
Title of Research Project	Tensile testing of ALD films on polymer substrates	
Written Report submitted to host institution	Yes, and a presentation was given to colleagues at EMPA	
Experimental Techniques used:	Uniaxial tensile testing under a microscope Atomic deposition of thin films onto polymer substrates	
Interest level of project	on a scale of 1 (low) to 10(high)	9
Quality of support provided	on a scale of 1 (low) to 10(high)	8
Interaction with other researchers	on a scale of 1 (low) to 10(high)	7

TUHH, Hamburg, Germany

Report 1

1. General		
Placement Location	TUHH, Hamburg, Germany	
Arrival and Departure Dates	01.07.2019 to 31.08.2019	
No. of working days spent at Institution	62	
2. Financial		
Cost and method of return travel from the UK (£)	Plane flights £160	
Total cost of daily travel to and from Institution	Free (very short walking distance, 8mins on foot)	
Total cost of accommodation (say if provided free)	400 Euro per month 800 Euro total	
Value of Armourers & Brasiers bursary	£975	
Total received from College	0 (the college Finance Office wanted to see the amount awarded by the Armourers and Brasiers Company before awarding any funding, and decided I was adequately funded).	
Total received from Institution	600EUR	
3. Accommodation		
Accommodation address	NIT Apartments, 12 Kasernenstrasse, 21073 Hamburg	
Type of Accommodation	Single room apartment, with en-suite and small kitchenette	
Distance from Institution	About 300 metres	
Quality of accommodation	on a scale of 1 (low) to 10 (high)	8

Quality of facilities	on a scale of 1 (low) to 10 (high)	8
Convenience of location	on a scale of 1 (low) to 10 (high)	8
4. Research Project		
Title of Research Project	Emulsion based self-assembling nanoparticle microballs	
Written Report submitted to host institution	Yes	
Experimental Techniques used:	Chemical synthesis: rotovapor, centrifugion, magnetic decanting. Analysis: SEM and ImageJ analysis	
Interest level of project	on a scale of 1 (low) to 10(high)	6
Quality of support provided	on a scale of 1 (low) to 10(high)	7
Interaction with other researchers	on a scale of 1 (low) to 10(high)	8

Report 2

1. General		
Placement Location	TUHH, Hamburg	
Arrival and Departure Dates	30th June – 16th August	
No. of working days spent at Institution	35	
2. Financial		
Cost and method of return travel from the UK (£)	Aeroplane. £200.	
Total cost of daily travel to and from Institution	€4 if I took the bus, but I also walked or cycled	
Total cost of accommodation (say if provided free)	Provided by institution	
Value of Armourers & Brasiers bursary	£815	
Total received from College	£600	
Total received from Institution	None, free accommodation.	
3. Accommodation		
Accommodation address	Grosse Strasse 124c, 21075, Hamburg	
Type of Accommodation	House owned by friends of the institution. Basement room with shared kitchenette with another man that worked at the university. House owners lived above.	
Distance from Institution	Distance from Institution 45 minute walk, 10 minute bus	
Quality of accommodation	on a scale of 1 (low) to 10 (high)	8
Quality of facilities	on a scale of 1 (low) to 10 (high)	8
Convenience of location	on a scale of 1 (low) to 10 (high)	2 – far from the university which is a further 30 minute train ride to the centre of town. Buses in the evening were also very

		sporadic and often involved a further 15 minute walk.
4. Research Project		
Title of Research Project	Thermal Degradation of Epoxy Resin for Polymer Composites	
Written Report submitted to host institution	Yes	
Experimental Techniques used:	TGA, Mechanical testing (tensile tests), FTIR, Python coding for data handling	
Interest level of project	on a scale of 1 (low) to 10(high)	6
Quality of support provided	on a scale of 1 (low) to 10(high)	6 – Generally good and I could ask my supervisor for help whenever; however, there was a period of 2 weeks where he was away, meaning I could only contact him over email and whatsapp.
Interaction with other researchers	on a scale of 1 (low) to 10(high)	7

Rolls-Royce Deutschland, Germany

1. General		
Placement Location	Rolls-Royce Deutschland – Dahlewitz, Berlin	
Arrival and Departure Dates	14.07 – 20.09	
No. of working days spent at Institution	50	
2. Financial		
Cost and method of return travel from the UK (£)	Bus from Opole to Berlin and from Berlin to Opole - 43.5 GBP	
Total cost of daily travel to and from Institution	216 GBP	
Total cost of accommodation (say if provided free)	807.6 GBP	
Value of Armourers & Brasiers bursary	575 GBP	
Total received from College	500 GBP	
Total received from Institution	1631.6 GBP	
3. Accommodation		
Accommodation address	Frankenhauser strasse 16, Berlin	
Type of Accommodation	Flat shared with two other people.	
Distance from Institution	1 hour commute both from work and from the city	
Quality of accommodation	on a scale of 1 (low) to 10 (high)	9
Quality of facilities	on a scale of 1 (low) to 10 (high)	9

Convenience of location	on a scale of 1 (low) to 10 (high)	6
4. Research Project		
Title of Research Project	Evaluation of Nucleation Damage Parameter as a fatigue life criterion for Allvac718Plus in the context of multiaxial loading for different R-ratios.	
Written Report submitted to host institution	Yes	
Experimental Techniques used:	Finite Element Analysis, Scripting + Python	
Interest level of project	on a scale of 1 (low) to 10(high)	9
Quality of support provided	on a scale of 1 (low) to 10(high)	9
Interaction with other researchers	on a scale of 1 (low) to 10(high)	8

Max-Planck Institut für Eisenforschung, Düsseldorf, Germany

Report 1

1. General		
Placement Location	MPIE Dusseldorf, Germany	
Arrival and Departure Dates	29/06/2019 – 31/08/2019	
No. of working days spent at Institution	45	
2. Financial		
Cost and method of return travel from the UK (£)	Flights from Manchester £180 total	
Total cost of daily travel to and from Institution	Monthly travel card €78 per month (This covers all public transport in Dusseldorf)	
Total cost of accommodation (say if provided free)	£1341.20	
Value of Armourers & Brasiers bursary	£745	
Total received from College	£400	
Total received from Institution	€1400	
3. Accommodation		
Accommodation address	Birkenstrasse 63.3, Dusseldorf, Germany , 40233	
Type of Accommodation	Serviced Apartment	
Distance from Institution	2.2 km	
Quality of accommodation	on a scale of 1 (low) to 10 (high)	8
Quality of facilities	on a scale of 1 (low) to 10 (high)	8
Convenience of location	on a scale of 1 (low) to 10 (high)	7
4. Research Project		
Title of Research Project	Nanoindentation on Nanostructured Samples formed from Highly Deformed and Amorphous Precursors	

Written Report submitted to host institution	Yes and presentation	
Experimental Techniques used:	Nanoindentation, SEM, TEM , EBSD	
Interest level of project	on a scale of 1 (low) to 10(high)	7
Quality of support provided	on a scale of 1 (low) to 10(high)	7
Interaction with other researchers	on a scale of 1 (low) to 10(high)	7

Report 2

1. General		
Placement Location	Max Planck-Institut für Eisenforschung (MPIE), Düsseldorf, Germany	
Arrival and Departure Dates	29/07/19 to 31/08/19	
No. of working days spent at Institution	45	
2. Financial		
Cost and method of return travel from the UK (£)	British Airways Flights: £283.22 (Out - £106.31, In - £176.91)	
Total cost of daily travel to and from Institution	£45 (Purchased bike, used, improved and sold - net loss of €50)	
Total cost of accommodation (say if provided free)	£1312.02 (£2524.03 shared between two people)	
Value of Armourers & Brasiers bursary	£745 (£645 received, + £100 on hand in)	
Total received from College	£300	
Total received from Institution	£1275.10 (€1400)	
3. Accommodation		
Accommodation address	Birkenstraße 63, Düsseldorf, Nordrhein-Westfalen 40233, Germany	
Type of Accommodation	Airbnb two person flat. Shared with other Cambridge student.	
Distance from Institution	2.1km (7-minute cycle)	
Quality of accommodation	on a scale of 1 (low) to 10 (high)	9
Quality of facilities	on a scale of 1 (low) to 10 (high)	8
Convenience of location	on a scale of 1 (low) to 10 (high)	10
4. Research Project		
Title of Research Project	Macroscale Electrical Characterisation of Single Grain Boundaries in Bulk Material	
Written Report submitted to host institution	Yes, as well as presentation	
Experimental Techniques used:	Metallography, Electron Backscattered Diffraction (EBSD), SEM imaging, 4-point probe electrical measurements, Electrical stage heating/cooling using Liquid Nitrogen, Confocal microscopy	

	With supervisor: Physical Vapor Deposition (PVD), Focused Ion Beam (FIB) milling/deposition	
Interest level of project	on a scale of 1 (low) to 10(high)	7
Quality of support provided	on a scale of 1 (low) to 10(high)	9
Interaction with other researchers	on a scale of 1 (low) to 10(high)	8

ESI, Leoben, Austria

1. General		
Placement Location	ESI, Leoben	
Arrival and Departure Dates	Arrived 1/07/19, departed 31/08/19	
No. of working days spent at Institution	41	
2. Financial		
Cost and method of return travel from the UK (£)	£70 for flight out, £80 for trains back	
Total cost of daily travel to and from Institution	€0	
Total cost of accommodation (say if provided free)	€310 a month, plus a €200 deposit	
Value of Armourers & Brasiers bursary	£700	
Total received from College	£100	
Total received from Institution	£980	
3. Accommodation		
Accommodation address	Top 1, Fischergasse 14, 8700 Leoben	
Type of Accommodation	Student flat	
Distance from Institution	5 minute walk	
Quality of accommodation	on a scale of 1 (low) to 10 (high)	8
Quality of facilities	on a scale of 1 (low) to 10 (high)	7
Convenience of location	on a scale of 1 (low) to 10 (high)	10
4. Research Project		
Title of Research Project	Investigation into the variation of electro-mechanical properties of Mo-based thin films on compliant substrates with strain and sample geometry	
Written Report submitted to host institution	Yes	
Experimental Techniques used:	(In-situ and ex-situ) LEXT imaging, 4-point probe resistance measurements. Thin film straining techniques (Linear and ending)	
Interest level of project	on a scale of 1 (low) to 10(high)	8
Quality of support provided	on a scale of 1 (low) to 10(high)	8
Interaction with other researchers	on a scale of 1 (low) to 10(high)	7