

Laser-probe 40Ar-39Ar investigation of a pseudotachylyte and its host rock from the Outer Isles thrust, Scotland

**S.P. Kelley and S.M. Reddy, Department of Earth Sciences, Open University,
Milton Keynes MK7 6AA, United Kingdom
R. Maddock 30 Kingsway, Woking, Surrey, United Kingdom**

Biotite grain samples

39Ar Amounts x 10E-12 cc STP

Sample	40Ar/39Ar	38Ar/39Ar	37Ar/39Ar	36Ar/39Ar	39Ar	+-	Y	X	Age (Ma)	+-
grain A	201.72	0.003	-0.236	0.011	0.609	0.012	18440	-510	1427	21
grain A	196.34	0.022	-0.197	-0.016	0.447	0.012	18420	-450	1439	29
grain A	199.28	0.027	-0.126	-0.018	0.554	0.031	18400	-390	1456	57
grain A	190.40	0.021	0.024	0.004	0.992	0.026	18350	-300	1380	27
grain B	185.23	0.032	-0.172	-0.011	0.636	0.016	14950	-1480	1376	27
grain B	193.27	0.022	0.025	0.001	0.946	0.018	14920	-1420	1399	38
grain B	224.37	0.026	0.090	0.011	1.326	0.018	14920	-1340	1536	15
grain B	208.96	0.013	0.145	-0.002	0.956	0.026	14900	-1280	1480	42
grain B	204.33	0.024	0.005	-0.002	1.077	0.034	14870	-1210	1458	36
grain B	199.18	0.022	-0.085	0.003	1.288	0.044	14820	-1060	1426	35
grain C	149.29	0.009	-0.139	0.020	0.187	0.018	5940	4350	1130	135
grain C	227.72	0.035	0.182	0.015	0.433	0.016	5920	4180	1546	42
grain C	230.71	0.026	-0.026	0.001	0.998	0.021	5930	4280	1578	35
grain C	199.61	0.036	0.132	0.012	0.940	0.023	5930	4240	1414	25
grain C	202.93	0.039	0.189	0.014	0.814	0.023	5930	4190	1427	29
grain D	109.48	0.030	-0.113	-0.002	1.893	0.028	770	6580	924	13
grain D	185.89	0.015	-0.221	-0.027	0.458	0.014	840	1910	1404	31
grain D	212.38	0.014	-0.239	-0.019	0.513	0.014	860	1980	1521	29
grain D	184.04	0.017	-0.336	-0.008	0.875	0.026	860	2040	1365	29
grain D	180.08	0.037	-0.637	-0.009	0.193	0.014	880	2130	1346	227
grain D	180.15	0.047	-0.860	-0.010	0.442	0.026	840	1990	1348	63
grain D	194.51	0.018	-0.557	0.002	0.683	0.021	830	1660	1404	79
grain E	162.24	0.029	0.250	0.019	0.617	0.016	730	5350	1205	24
grain E	196.68	0.031	0.378	0.016	0.409	0.014	740	5410	1394	40
grain E	187.90	0.039	0.582	0.030	0.395	0.012	770	5480	1328	31
grain E	195.37	0.031	-0.262	-0.043	0.231	0.016	830	5720	1473	75
grain E	199.54	0.051	-0.405	0.048	0.190	0.012	840	5760	1360	69
grain F	141.67	0.028	-0.121	0.004	1.595	0.026	480	7740	1113	14
grain F	151.99	0.038	0.006	0.004	0.904	0.026	340	7820	1172	28
grain F	129.21	0.023	0.032	0.008	0.781	0.023	360	7810	1030	26
grain F	149.02	0.024	-0.180	0.003	1.074	0.031	530	7660	1156	27
grain F	149.76	0.009	-0.091	0.005	0.811	0.026	650	7530	1159	41
grain G	148.40	0.038	0.471	0.011	0.327	0.023	220	8630	1140	110
grain G	106.69	0.078	0.902	0.024	0.266	0.009	260	8650	854	47
grain G	107.39	0.009	2.798	0.069	0.170	0.016	305	8680	766	72
grain G	153.79	0.044	0.378	0.004	0.907	0.018	370	8630	1183	21
grain G	154.78	0.039	0.764	0.046	0.603	0.016	410	8650	1116	23
grain G	115.94	0.061	1.086	0.037	0.384	0.016	430	8700	889	33
grain G	136.42	0.062	1.150	0.058	0.247	0.014	460	8710	982	56
grain H	174.16	0.042	-0.768	0.003	0.362	0.014	477	6484	1297	52
grain H	107.92	0.025	-0.594	-0.004	0.395	0.010	387	6480	917	54
grain H	97.64	0.013	-0.450	-0.030	0.324	0.014	285	6461	900	63

grain H	100.17	0.033	-0.625	-0.033	0.376	0.010	185	6463	923	51
grain I(1)	185.50	0.035	-0.075	0.008	0.820	0.028	60	8290	1349	34
grain I(1)	178.39	0.029	0.005	0.010	0.904	0.028	70	8230	1308	30
grain I(1)	163.54	0.021	-0.172	0.008	0.842	0.018	60	8200	1232	22
grain I(1)	155.23	0.024	0.072	0.005	0.757	0.014	50	8160	1190	21
grain I(1)	150.06	0.044	-0.129	-0.020	0.223	0.014	20	8150	1202	91
grain I(2)	94.35	0.039	0.240	0.001	1.030	0.018	210	7960	815	91
grain I(2)	90.02	0.041	-0.055	0.009	1.986	0.055	150	8060	768	18
grain I(2)	112.09	0.031	-0.006	0.000	1.972	0.028	120	8140	935	38
grain I(2)	118.57	0.028	0.033	0.000	2.123	0.031	100	8200	977	24
grain I(2)	112.54	0.030	-0.040	0.000	2.326	0.034	100	8300	938	30
grain I(2)	135.08	0.027	-0.007	0.002	1.797	0.012	140	8360	1077	8
grain I(2)	138.81	0.032	0.043	0.001	1.605	0.036	150	8420	1102	30
grain I(2)	91.12	0.036	0.096	0.001	1.400	0.023	140	8510	793	54
grain I(2)	105.78	0.031	0.160	-0.002	0.748	0.021	120	8520	899	83

Y = distance from pseudotachylite boundary

X = distance from a perpendicular to the boundary

Laser-probe 40Ar-39Ar investigation of a pseudotachylite and its host rock from the Outer Isles thrust, Scotland

**S.P. Kelley and S.M. Reddy, Department of Earth Sciences, Open University,
Milton Keynes MK7 6AA, United Kingdom
R. Maddock 30 Kingsway, Woking, Surrey, United Kingdom**

Pseudotachylite vein samples

39Ar amounts x 10E-12 cc STP

Sample	40Ar/39Ar	38Ar/39Ar	37Ar/39Ar	36Ar/39Ar	39Ar	+-	Age (Ma)	+-	distance
pseud vein 1	146.93	0.116	0.493	0.088	0.32	0.01	993	30	-3620
pseud vein 2	107.29	0.068	0.435	0.034	0.83	0.02	838	14	-100
pseud vein 3	54.74	0.053	0.307	0.006	2.56	0.04	504	7	-8610
pseud vein 4	72.92	0.087	0.276	0.010	3.95	0.04	639	6	-1290
pseud vein 5	77.33	0.038	0.088	0.024	0.83	0.02	641	13	-620
pseud vein 6	61.99	0.084	0.224	0.011	2.63	0.05	551	9	-910
pseud vein 7	72.61	0.109	0.291	0.004	2.32	0.05	650	12	-1260
pseud vein 8	73.07	0.096	0.442	0.004	1.72	0.02	654	8	-1730
pseud vein 9	69.35	0.032	0.477	0.005	1.81	0.04	623	11	-2280
pseud vein 10	57.65	0.058	0.438	0.005	1.86	0.02	530	6	-2800
pseud vein 11	56.08	0.046	0.341	0.007	1.58	0.02	511	6	-3260
pseud vein 12	91.07	0.056	0.487	0.001	1.25	0.02	793	77	-3690
pseud vein 13	46.72	0.066	0.468	0.009	1.59	0.01	428	4	-4290
pseud vein 14	51.01	0.072	0.685	0.016	0.74	0.03	447	16	-5230
pseud vein 15	49.28	0.065	0.711	0.009	0.95	0.03	449	20	-5600
pseud vein 16	46.67	0.067	0.445	0.009	1.56	0.01	427	4	-6040
pseud vein 17	47.86	0.063	0.439	0.014	1.62	0.04	425	9	-6470
pseud vein 18	47.46	0.071	0.510	0.004	1.74	0.03	448	10	-6920
pseud vein 19	48.83	0.044	0.443	0.004	1.65	0.03	459	10	-7310
pseud vein 20	58.11	0.036	0.384	0.001	1.39	0.02	544	102	-7710
pseud vein 21	45.60	0.047	0.415	0.000	2.16	0.02	440	67	-8220
pseud vein 22	51.45	0.069	0.477	-0.002	1.04	0.03	495	53	-9070
pseud vein 23	46.71	0.053	0.363	-0.010	1.27	0.03	475	12	-9370
pseud vein 24	55.79	0.075	0.418	0.020	1.41	0.03	478	10	-9600
pseud vein 25	49.56	0.066	0.242	0.015	1.30	0.03	436	8	-10070
pseud vein 26	102.49	0.061	0.474	0.006	1.09	0.02	861	14	-4040
pseud vein 27	244.35	0.023	-0.444	-0.009	0.18	0.01	1653	109	-150
pseud vein 28	444.67	-0.041	-0.297	0.011	0.09	0.01	2350	212	-120
pseud vein 29	227.54	0.047	-0.119	0.003	0.38	0.01	1562	49	-150
pseud vein 30	290.54	0.034	0.169	0.010	0.62	0.02	1822	36	-200