**Go to end for table detailing all CLUSTER\_xxx.sxy and spectrumNO\_xxx files.**

**Analysis of this data can be found in C:\Jack Eardley PhD documents\2017\July\ and C:\Jack Eardley PhD documents\2017\June as well as in the work of M. Litwinowicz and his laboratory book, the relevant section of my laboratory (J. Eardley) book is page 72 to 81 inclusive.**

|  |  |
| --- | --- |
| **Filename** | **Description** |
| 27/06/17 |  |
| cluster\_000 | Molecular beam scan, 226.14 nm. Mass window 8.175 to 8.35 us on camera gate mode. 1e-5 chamber pressure, molecular beam of trace NO in argon. Image shows typical beam +thermal background. R=2001 V, E1= 1725 V, E2=1669 V. MCP 1= 945 V, MCP 2=1400 V, screen=6484 V. |
| 28/06/17 |  |
| cluster\_001 | 6% No in Argon at 3.5 bar backing pressure, 225.9403 nm, 12.475 to 12.85 us mass window. NOAr cluster image, 1.4E-5 mbar chamber pressure. |
| cluster\_002 | Image showing NO, NO(thermal) and NOAr positions. |
| cluster\_003 | 323 +226.144 nm (1+1’) NO REMPI image, pulses overlapped in time and space 1.5E-5 mbar chamber pressure |
| cluster\_004 | Repeat 003 with 323 nm laser blocked |
| 30/06/17 |  |
| cluster\_005 | Repeat cluster\_003 with new nozzle, 3 bar backing pressure |
| cluster\_006 | Repeat 005 with 323 nm laser blocked |
| cluster\_007 | Higher backing pressure (4.4 bar) 3E-5 mbar chamber pressure, full power 225.9403 nm, 15.4 to 15.9 us mass window. (ar2NO) 323.5 nm laser on but has no measurable effect. Optimised molecular beam delay time using NOar signal. 225 nm laser unfocussed, 323.5 nm laser focussed and optimised with (1+1’) NO signal. However no (1+1’) ar2NO signal is seen. |
| cluster\_008 | 323.5 nm + 225.9403 nm ArNO. Medium power laser, high backing pressure molecular beam, clear (1+1’) signal. |
| cluster\_009 | Repeat with 323.5 nm blocked, double length experiment. |
| 05/07/2017 |  |
| spectrumNO\_000 | 2.2E-5 mbar chamber pressure, 3.9 bar backing pressure. 323.5 nm+226.3 to 225.6 nm scanned. Early in molecular beam. |
| spectrumNO\_001 | Repeat without the 323.5 nm laser |
| 07/07/2017 |  |
| spectrumNO\_002 | Repeat with 323.5 nm laser, 225.85 to 225.55 nm scan with finer resolution. |
| cluster\_010 | 224.9 nm +323.5 nm, NO mass range, 1e-5 mbar chamber pressure, dissociation of ArnNO clusters |
| cluster\_011 | Repeat 010 with 225.3 nm and 323.5 nm |
| cluster\_012 | Repeat 011 without 323.5 nm laser |
| 10/07/2017 |  |
| Data in labbook | Time resolved data, see laboratory book |
| cluster\_013 | 225.9365 nm + 323 nm, NO mass range. Channel C, 89764.5 ns delay time. (1+1’) REMPI image, 4.5 bar backing pressure, 2E-5 mbar chamber pressure. |
| cluster\_014 | Repeat 013 with channel C: 89774.5 ns laser delay time so that 323 nm laser arrives after 225 nm laser has left |
| 11/07/2017 |  |
| Data in labbook | Time resolved data, see laboratory book |
| cluster\_015 | NOar mass window, 310 us molecular beam delay for optimal cluster formation, 323 nm + 225.9437 nm, (X to A fundamental transition) 4.3 bar backing pressure, 2E-5 mbar chamber pressure, partially open amplifier on 225 nm. 89764.5 ns 323 nm delay time. (means lasers are overlapped) |
| Cluster\_016 | Repeat 015 with 89754.5 ns delay time ie 323 nm laser arrives and leaves before 225 nm laser. |
| Cluster\_017 | Repeat 015 with laser delay at 89774.5 ns delay, ie 225 nm laser arrives and leaves before 323 nm laser (higher 225 nm power) |
| Cluster\_018 | 89664.5 ns laser delay 323 nm laser arriving long before 225.95 nm laser |
| Cluster\_019 | NO mass range, NOar resonant laser at 225.95 nm + 323 nm lasers, 297 us molecular beam delay time. Optimum laser pulse overlap 89764.5 ns |
| Cluster\_020 | Repeat 019 with channel C at 89864.5 ns, higher 225 nm power. |
| 13/07/17 |  |
| Cluster\_022 | 2E-5 mbar chamber pressure, 3.8 bar backing pressure, 225.78 nm laser at high power, 323 nm laser, timing with laser pulses arriving together, ArNO mass range |
| Cluster\_023 | Repeat 022 with 323 nm laser blocked |
| Cluster\_024 | Repeat 022 with 323 nm laser arriving 3 ns earlier thus illuminating molecules before the 225 nm laser arrives. |