**Table S2.** Bulk/surface ratio of the relative Bromine content for various conditions found from angle-resolved XPS.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Br:PbNormal emission (Bulk) | Br:PbGrazing emission (surface) | Bulk/surface |
| As-prepared | 1.98 | 1.72 | 1.15 |
| Cleaved | 2.33 | 2.08 | 1.12 |
| Br 15-min | 2.57 | 2.26 | 1.14 |
| Br 20-min | 2.78 | 2.45 | 1.13 |
| Br 60-min | 3.44 | 2.49 | 1.38 |