SURFACE SCIENCE SPECTRA

SIMS Contributors Form

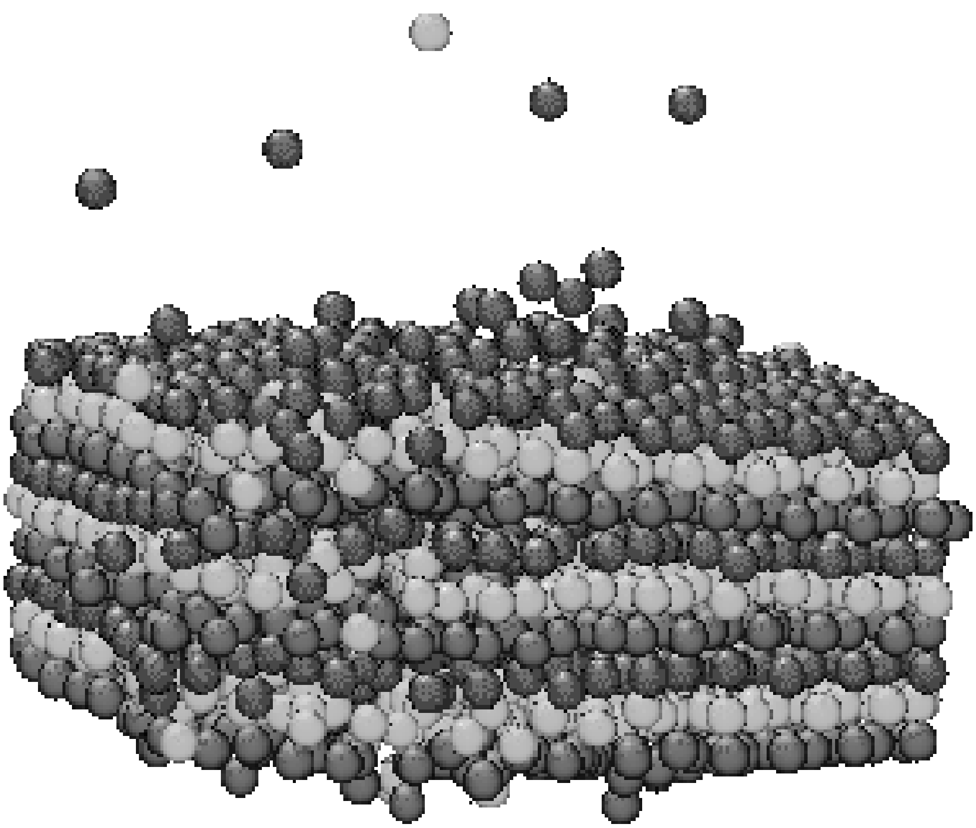


Figure Credit: Pennsylvania State University

Draft 9, December 2005

Published by AVS: Science and Technology of Materials, Interfaces, and Processing

Editor: Stephen W. Gaarenstroom

SIMS Contributors Form

About *Surface Science Spectra*

Surface Science Spectra (*SSS*) is a journal and electronic database devoted to the distribution of surface spectroscopy data files. Spectra of any material of scientific and technological interest will be considered for inclusion. Currently, only XPS, AES, and SIMS spectra are being reviewed for acceptance. Additional techniques will be added later.

What Data to Submit

The *SSS* database is designed to serve a wide range of needs. The objectives of the database include, but are not limited to, the following:

1. It provides examples of spectra from a wide range of materials that enable researchers and analysts to estimate, or predict, the type and quality of information that may be available from surface analytical techniques for problems they are encountering.
2. It provides a spectral library to allow comparisons of data from one laboratory and instrument to what others have found on different instruments or under different conditions.
3. It provides a spectral library that assists users of surface science data in extracting the most information possible by providing spectra from known materials and systems for comparison.
4. It provides a forum to present complete data sets for information published elsewhere where full presentation of the data was not possible due to space limitations.

To best accomplish the first three objectives, the database needs as many data sets as practical from as wide a range of materials as possible. To serve the last objective, submitted data need to satisfy the first three objectives as well as allow a full examination of the data supporting the ideas presented in the original publication.

It should be noted that even though spectra from a particular material have already appeared in *SSS,* we encourage the submission of data on the same or similar materials obtained from other instruments in order to meet the stated objectives. Remember—not everyone has the latest or highest performance machine. A tremendous amount of good work is being done on older machines and should be featured in the *SSS* database.

Categories of Data Records

Three categories of data records are published in *SSS:*

- **Technical:** Data records characterizing complex surfaces that are of technological interest.
- **Comparison:** Data records characterizing chemically well-defined surfaces that can be used in identifying surface chemistry.
- **Reference:** Data records that can be used in calibrating energy scales and identifying chemical states of compounds of surfaces.

The Submission Cycle

Submissions to *SSS* are distributed to recognized experts for peer review before acceptance into the database. Submissions determined to be of sufficient quality or interest to the applied surface science community will be accepted for publication, entered into the AVS database, and prepared for publication in *SSS.* They will be placed in the earliest issue in which there is space.

Submitting a Data Record

To submit a data record to *SSS,* you must:

1. Prepare three copies of the SIMS Contributors Form.
2. Prepare three hard copies of each spectrum in the data record.
3. Send electronic records of all spectra, including calibration spectra, on magnetic disk.

At least one survey spectrum must be included with each data record to characterize the elements present. Authors may submit, for inclusion in the electronic database, the full set of spectra necessary to completely characterize the surface, even if the number of spectra is too large to print in *SSS.* Fields are provided in the SIMS Contributors Form to designate which spectra are only for entry into the electronic database. For example, calibration spectra will be entered into the electronic archives as part of the data record but will not necessarily be printed in *SSS.*

The Data Center

Data are sent from the editors to the AVS Data Center located in Pasadena, CA. The Data Center manages the flow of documents among the publishers, the editors, and, on occasion, the contributors.

The Data Center manages the *SSS* database, handles data entry from the Contributors Form, and converts spectra data and chemical structure diagrams into a common digital format, which is then made accessible to subscribers in an electronic format on floppy disk.

The Data Center will attempt to convert data files from all commercial spectrometer systems. As there are many combinations of physical and logical media formats, the following guidelines are suggested to streamline the translation process:

1. When possible, send data files on disk or CD.
2. MS-DOS format disks are preferred. Hewlett-Packard LIF format, Apple ProDOS, or Macintosh formats can easily be converted.
3. ASCII formats, when available, are preferred over binary formats.

PHI: The .DIF or .ASC logical formats are standard, whereas native formats may be system-dependent. On Apollo or Perkin-Elmer computers, MS-DOS compatible readable disk format is generally available and is preferred.

SSI: Most SSI products are based on HP-9000 computers that write in LIF format to standard 3.5" disks. The binary format is acceptable, but disks should be formatted using the DEFAULT option of the X-Probe software in order to produce MS-DOS compatible sectoring (the DEFAULT option works on either size media).

Magnetic disks should be labeled with the corresponding author's name and telephone number, the title of the submission, the spectrum numbers of the spectra on the disk, and the data format (e.g., PHI .DIF).

All submissions should be mailed to the *SSS* Editorial Office, see page 20.

Preparing the SIMS Contributors Form

The information required to complete the Contributors Form falls in three categories:

1. **Information pertaining to the entire submission:**
   - Section A: Authors, Institutions, Overview
   - Section C: Overall Instrument Description
   - Section D: Calibration Information
   - Section H: Analysis Methods
   - Section I: Spectral Features Descriptions
2. **Information pertaining to each sample, instrument configuration, or experimental variable in the submission:**
   - Section B: Specimen Description
   - Section E: Variable Instrument Parameters
   - Section G: Experimental Variables
3. **Information pertaining to each spectrum submitted:**
   - Section F: Spectrum Parameters

Test cases show that the typical amount of time needed to complete this form is 2-4 hours—a relatively short period in which to produce a refereed, archival publication. Future submissions should take even less time if the contributor photocopies partially completed sections of the SIMS Contributors Form at appropriate stages in the preparation of the first submission.

For example, a number of data items, such as those in Section C that describe the basic characteristics of the spectrometer, will tend to be the same for all submissions of data from a given instrument. Such entries should be identified and filled in. Then, the entire form can be photocopied for future use before making additional entries. Also, the Variable Instrument Parameters section constitutes a profile of how an instrument is set up to take a series of spectra. For most laboratories, only a few entries in this section will change from one data record to another, and a small set of partially completed forms can be assembled. It is well worth the effort to examine the form before filling it out and to design a set of partially completed forms tailored to your typical measurement procedures. It might also be noted that the Contributors Form is a useful way to document data records, even if they are not submitted to *SSS.*

One copy of the Spectrum Parameters section is required for each spectrum, including calibration spectra, in the data record. Different copies of the Variable Instrument Parameters section are required, depending on how many instrument configurations were used to take the spectra. As an example, in a typical SIMS submission, there would be one Variable Instrument Parameters section (VIPS) for the survey spectrum, one VIPS for the high-resolution spectra, and one VIPS for the valence band spectra.

The section on Experimental Variables is for use in documenting data records showing the effects of parameters (e.g., gas exposure or temperature), that are varied from one spectrum to another. This section needs to be included with the submission only for data records featuring variable parameter studies. The data entries for the remaining sections should be the same for all spectra.

Submission Illustration

For example, for a submission with six submitted spectra, two sample treatments, and two instrument configurations, you should complete the forms as shown in the diagram on the following page.

Calibration Spectra

Because the condition of the instrument used to take the data submitted to *SSS* directly affects the data, we require that calibration spectra be submitted with all "comparison" and "reference" data sets and strongly recommend submission of calibration spectra for "technical" data sets. With access to the actual calibration data, *SSS* users can assess the condition of the instrument used to collect the data. Today, only the peak energies that appear in the calibration summary table are used most often from calibration data details. In the future, as more understanding of the techniques is available, the intensity data will be used to allow better quantification. Having the calibration data, such as a survey scan of Cu, Ag, or Au, as part of the *SSS* data record will facilitate this quantifcation in the future.

One copy of Section B, Specimen Description, must be completed for the calibration sample, and one copy of Section F, Spectrum Parameters, should be completed for each calibration spectrum included in the submission.

Peak Labeling

For SIMS spectra, label mass units of special interest to the reader.

Completing Entries

The information you provide should be complete enough so that the experiment can be reconstructed by *SSS* readers. Each data field is coded 1, 2, 3, 4, or 5 to assist you in assessing the consequences of omitting an entry.

- ① Level 1: Mandatory entry—An entry must be made, even if the only valid entry is N/A (not applicable). The absence of an entry is not equivalent to entering zero, none, or N/A.
- ② Level 2: Mandatory entry—An entry must be made unless there are special considerations. Failure to make an entry would be acceptable only if the data record were of such unusual technical importance that it should be archived, even in the absence of some data entries at this level.
- ③ Level 3: Recommended entry—An entry, though not required, is important to readers who wish to have a complete interpretation of the data record.
- ④ Level 4: Recommended entry—An entry allows the most critical uses of the data record.
- ⑤ Level 5: Optional entry—An entry should be made at the author's discretion (e g., see Field 11, Section A).

The completeness level code is listed to the left of every field number. If you cannot determine how to complete an entry and need assistance, please contact the *SSS* editor:

Stephen W. Gaarenstroom
General Motors R&D Center
Analytical Chemistry Department
30500 Mound Road
Warren, MI 48090-9055
Phone: (586)-986-0835
Fax: (586)-986-0817
E-Mail: stephen.w.gaarenstroom@gm.com

If you need additional room, attach pages and note the question number to which the information refers.

Thank you for contributing to Surface Science Spectra*, "an international journal devoted to archiving surface science spectra of technological and scientific interest." The editors are interested in constructive criticism of the SIMS Contributors Form and its data fields and would appreciate your comments on page 20.*

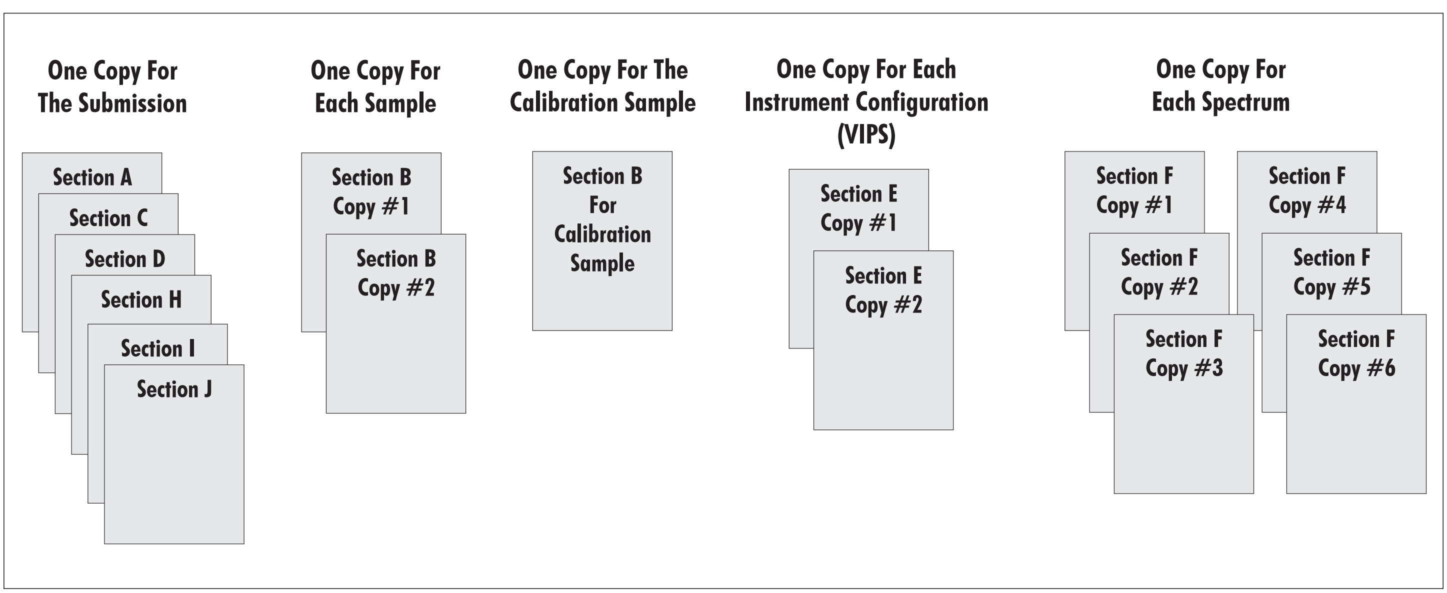


Table of Contents

A. Authors, Institutions, Overview

① **1. Title**—*Enter a title, beginning with a descriptive reference to the specimen materials or other characteristics specific to this data record, e.g., "Polyvinyl Acetate Degradation During XPS Measurements." Please refrain from using titles beginning with the name of the spectroscopy, e.g., avoid titles like "SIMS Study of ..."*

① **2. Authors, Institutions, and Locations (city, state, province, or country)**—*List authors and affiliations in order of appearance in SSS. List addresses and names as you wish them to appear in SSS.*

Author

Institution

Department or M/S

Address

Country

Author

Institution

Department or M/S

Address

Country

Author

Institution

Department or M/S

Address

Country

Author

Institution

Department or M/S

Address

Country

Author

Institution

Department or M/S

Address

Country

Author

Institution

Department or M/S

Address

Country

Author

Institution

Department or M/S

Address

Country

① **3. Abstract—***Summarize and include key information about the specimens and spectra, such as specimen material, measurement procedures, and significance of the research. Avoid citing references in the abstract and using the abstract as a catch-all to insert information that is more appropriate for other data fields.* ***The abstract will be reprinted verbatim.*** *You may attach a separate sheet for the abstract if you wish.*

⑤ **4. Introduction—***(Optional) You may use this data field to provide a more detailed overview of the submission, including the significance of the work, its relation to other work and its real world importance. Unlike the abstract you may cite references.*

① **5. Corresponding Author—***Provide detailed information for the author chosen as principal contact for technical questions or questions from SSS editors.*

Last Name

First Name, Middle Initial

Institution

Department

Address, PO Box

Mail Stop

City, State, Zip Code

Country

Phone, Fax, E-Mail

① **6.**

# of digitally submitted *specimen* spectra for SSS publication—*Enter the number of specimen spectra for which you are requesting hard-copy publication. All submitted spectra for accepted data records will be entered into the AVS electronic database, but, in cases where large numbers of spectra are submitted, it may be feasible to publish only a representative number in* Surface Science Spectra. *An opportunity to identify specific spectra for publication is given in Field 2, Section F.*	
# of digitally submitted *specimen* spectra for electronic database only.	
# of digitally submitted *calibration* spectra—*(A mass spectrum or depth profile of an accepted reference material is recommended. Calibration spectra are not normally published in the hard-copy journal.)*	
Total # of digitally submitted spectra—*Enter the number of spectra being submitted, including all calibration spectra. Complete a copy of Section F for each submitted spectrum.*	

Note: the number you enter ***here*** should equal the sum of the top three boxes.

① **7. Spectra Category—***Check the suggested category of the data record: Technical, Comparison, or Reference (see the overview of instructions for definitions). The editors may suggest an alternate category, based on the recommendations of referees.*

☐ Technical ☐ Comparison ☐ Reference

③ **8. References—***List citations to articles related to the data record using the style of J. Vac. Sci. Technol. The references must be cited in other data fields in this record.*

⑤ **9. Acknowledgments**

Copy # ______

For *each* specimen or specimen treatment submitted, complete one copy of Section B.

Incomplete items for this copy should be (check one): ☐ left blank or ☐ replaced by answers from Section B, copy # ______.

B. Specimen Description

② **1. Host Material**—*Provide a generic description of the specimen, such as nylon, 6061 Al, or SiO_2. For layered structures, the host material is the "bulk" substance near the surface.*

③ **2. Chemical Abstract Service (CAS) Registry #**—*Enter the CAS registry number of the host material.*

③ **3. Material Designation Code and Organization**—*Provide any alternate standard designator code specifying the host material, e.g., 1033 for carbon steel, and identify the organization that developed the designated code, e.g., AISI.*

Code

Organization

② **4. Host Composition**—*Enter the chemical formula, if practical, e.g., Li_3PO_4, or list the principal elements present, e.g., Li, P, O.*

③ **5. Chemical Name**—*Enter the full chemical name of the host material according to IUPAC conventions, e.g., for Li_3PO_4, lithium orthophosphate.*

③ **6. Specimen Manufacturer/Supplier**—*Provide the name of the manufacturer and/or supplier of the host material or give a reference to how the host was made, e.g., thermally grown SiO_2 on Si.*

② **7. Specimen Form**—*Give a physical description of the host, e.g., MOSFET, reagent, single-crystal wafer, etc.*

④ **8. Lot Number**—*Provide the code that identifies the production run, etc.*

③ **9. Structural Formula**—*Include information such as a description of the crystal lattice and orientation, e.g., [1 O -1 O] hexagonal close-packed, and/or comments such as fracture surface at the grain boundary, etc. At a later date, this field will use a formula encoding scheme.*

Fields 10-13 refer to the *host material*. They are included to facilitate database searches.

② **10. Homogeneity**—*Check one that best applies.*

☐ Homogeneous ☐ Inhomogeneous ☐ Unknown

Copy # ______

① **11. Phase**—*Check one that best applies.*

☐ Solid ☐ Powder ☐ Liquid ☐ Gas

① **12. Crystallinity**—*Check one that best applies.*

☐ Single Crystal ☐ Polycrystalline ☐ Amorphous

☐ Unknown Crystallinity

③ **13. Electrical Characteristics**—*Check one that best applies.*

☐ Conductor ☐ Superconductor

☐ Semiconductor ☐ Dielectric ☐ Unknown

① **14. Material Family**—*Check one that best applies.*

☐ Semiconductor ☐ Polymer

☐ Organic Compound ☐ Inorganic Compound

☐ Biological Material ☐ Composite ☐ Metal

③ **15. Special Material Classes**—*Check all appropriate boxes. No entry is needed if these special classes do not apply. If "Other," describe in "as received condition" in Field 17 below.*

☐ Ceramic ☐ Glass ☐ Thin Film

☐ Powder ☐ Fiber ☐ Coating ☐ Other

☐ Suggested New Class Types ______________________

⑤ **16. History and Significance**—*This is an important comment field for background information about the specimen and the investigation, e.g., moon rock retrieved by Apollo IX mission, or a discussion of why the spectra were taken. Also, include comments on purity or known contaminants and results of other analytical techniques.*

____

____

____

____

____

____

____

② **17. As Received Condition**—*Describe the physical condition of the specimen as it was supplied to the spectroscopist, e.g., as grown, cold rolled steel, etc. Include the thermal and storage history of the specimen as well as physical condition.*

____

____

____

____

____

② **18. Analyzed Region**—*Describe the specimen analyzed qualitatively, e.g., FET gate oxide, same as host material, or weld bead.*

____

____

② **19. *Ex Situ* Preparation and Mounting**—*Describe specimen preparation prior to introduction into the spectrometer vacuum system, e.g., as received, washed in ethanol, scraped with a well-pickled file, etc. Also, describe the specimen mounting technique.*

____

____

____

② **20. *In Situ* Preparation**—*Describe specimen preparation or treatment procedures within the spectrometer vacuum system prior to analysis, e.g., ion sputter cleaning and annealing.*

____

____

____

③ **21. Specimen Temperature During Analysis**—*Enter the temperature in Kelvin.*

______________________ K

Copy # ______

② **22. Maximum Chamber Pressure During Analysis—***Enter the pressure in Pascal (1 Torr = 133 Pascal).*

___________________________ Pa

③ **23. Pre-Analysis Beam Exposures—***Describe procedures and include comments on the amount of time the analyzed region was exposed to ion or electron radiation prior to the measurements for these spectra (especially important for beam-sensitive materials). Include exposure time used to view area of analysis.*

____

____

____

____

② **24. Charge Control Conditions and Procedures—**

Describe the equipment used to control charge at the specimen during measurement. Include flood gun voltages and current, target bias, the use of metal screens, etc. Also, describe the procedures used to determine the charge control.

____

____

____

____

C. Instrument Configuration, General

②? **1. Spectrometer Manufacturer**

☐ ARL ☐ Atomika ☐ CAMECA ☐ FEI

☐ Fisons - VG ☐ Hitachi ☐ Kratos

☐ Physical Electronics - PHI

☐ Other ____________________

②? **2. Manufacturer Model #**

____

②? **3. Analyzer Type**

☐ Magnetic Sector ☐ Quadrupole

☐ Time-of-Flight ☐ Other ____________________

If TOF:

TOF Analyzer Type

☐ Linear ☐ Reflectron ☐ Triple Stage ESA

☐ Other ____________________

Extraction Voltage ____________________

Acceleration Voltage ____________________

②? **4. Experiment Type**

☐ Static

Depth Profile ☐ Continuous Sputter

☐ Interlaced/Interleaved

☐ Phased/Intermittent

②? **5. Ion Guns Used**—*(You will complete a copy of Section D for each ion gun.)*

Total number of Ion Guns used ____________________

Primary beam species for

a. Primary gun ____________________

b. Neutralization/charge control ____________________

c. Sputter gun ____________________

②? **6. Charge Control Conditions and Procedures**—*Describe the equipment used to control charge at the specimen during measurement. Include flood gun voltages and current, target bias, the use of metal screens, etc. Also, describe the procedures used to determine the charge control.*

____

____

____

____

②? **7. Rotation rate**—*Rate in revolutions per min for sample rotation.*

____

②? **8. Oxygen Flood Source**—*Describe oxygen flood system.*

____

____

____

②? **9. Oxygen Flood Pressure**—*Total chamber pressure, in PA (1 torr=133 PA).*

____________________ PA

②? **10. Oxygen Impingement Rate**

____

②? **11. Instrument Comments**—*Describes instrument peculiarities, e.g., sample can be tilted.*

____

____

____

____

②? **12. Sample Voltage Offset Range—** *The range over which sample voltage can be offset.*

____

②? **13. Energy Acceptance Window—** *Analyzer acceptance window width in eV.*

______________ eV

②? **14. Detector Description—** *Secondary ion detectors available. (check all that apply):*

☐ Faraday Cup ☐ Electron Multiplier

☐ Other__________ ☐ Daly

②? **15. Detected Sample Dimensions —** *Area in m x m if square or rectangular, or circle diameter in m if circular.*

___________ µm x µm or ___________ µm

②? **16. Live Time—** *Fraction of data acquisition time used for data taking.*

____

②? **17. Analyzer Mass Resolution—** *Full width at half maximum.*

____
(m/delta m)

②? **18. Mass Used to Determine Mass Resolution**

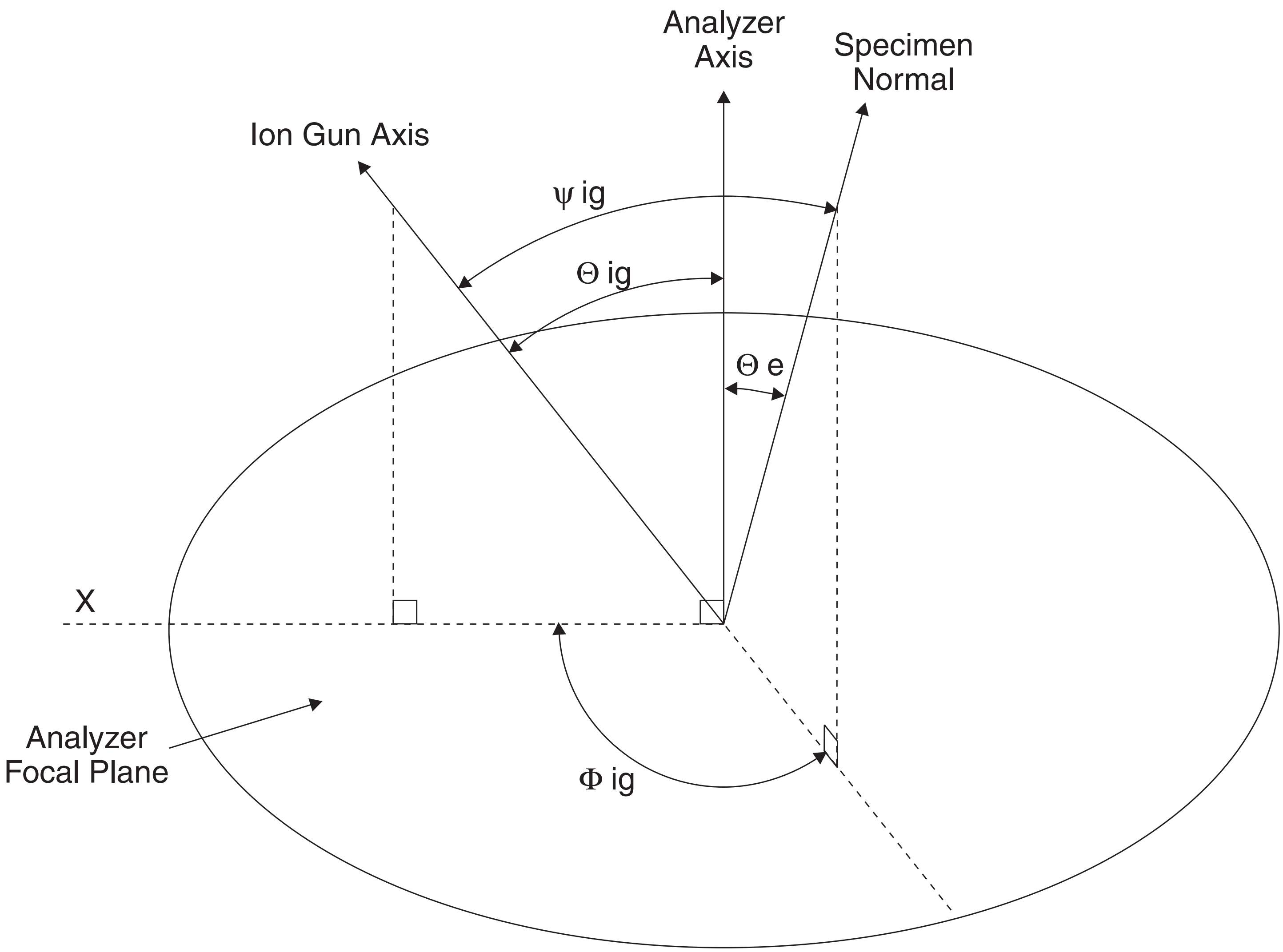
______________ Da

②? **19. Sample Bias—** *Sample potential with respect to ground.*

____
Volts

②? **20. Specimen Normal to Analyzer (e)—** *(See diagram, page 10.)*

______________ °


Analyzer
Axis
Specimen
Normal
Ion Gun Axis
ψ ig
Θ ig
Θ e
X
Analyzer
Focal Plane
Φ ig

Copy # ______

For *each* ion gun used, complete one copy of Section D.

Incomplete items for this copy should be (check one): ☐ left blank or ☐ replaced by answers from Section D, copy # ______.

D. Ion and Charge Control Guns

For each ion gun, submit one copy of Section D.

②? **1. Purpose of this gun**

☐ Primary beam

☐ Neutralization/charge control

☐ Sputtering/profiling

☐ Other (Describe) ________________________________

②? **2. Does this gun define the coordinate system?** *(See diagram on page 10)*

☐ Yes ☐ No

②? **3. Ion Gun Manufacturer**

☐ Atomika ☐ CAMECA ☐ FEI

☐ Fisons - VG ☐ Hitachi ☐ Kratos

☐ Physical Electronics - PHI

☐ Other ____

②? **4. Ion Gun Model**

____

②? **5. Non-Standard Ion Gun**—*Describe non-standard ion gun.*

____

____

____

②? **6. Beam Mass Filter**—*Indicate beam mass filter type and manufacturer.*

____

②? **7. Beam Mass Filter Resolution**

_____________________resolving power

②? **8. Beam Species** *(check only one)*

☐ O_2+ ☐ O^- ☐ Cs^+ ☐ Ar^+ ☐ Xe^+ ☐ Ga^+ ☐ SF_5+

☐ Other__________________ ☐ FAB______________

②? **9. Beam Gating Used?**

☐ Yes ☐ No

If yes, describe:

____

____

②? **10. Beam Comment** *(Describe gas mixture if more than one used as source gas.)*

____

②? **11. Beam Voltage**—*Voltage of ion gun with respect to ground.*

____
Volts

②? **12. Net Beam Voltage**—*(impact voltage) Difference between accelerating voltage and sample potential (see C-19).*

____
Volts

②? **13. Ion Pulse Length**—*TOF Parameter (duration of ion pulse).*

____
Seconds

②? **14. Ion Pulse rate**—*TOF Parameter (frequency of ion pulse).*

____
hertz

②? **15. Beam Current**

____
nA

Copy # ______

②? **16. Current Measurement Method**

☐ Electron Multiplier ☐ Faraday Cup

☐ Stage ☐ Adsorbed Current

☐ Bias Potential ☐ Other_________________

②? **17. Beam Diameter**—*Diameter of unrastered beam as full width half-maximum, in micrometers.*

____

µm

②? **18. Beam Raster Width X**—*Width of raster on the sample.*

____

µm

②? **19. Beam Raster Width Y**—*Width of raster on the sample.*

____

µm

②? **20. Non-standard Raster**—*Describe non-standard raster (e.g. spiral).*

____

②? **21. Beam Incident Angle**—*(See diagram on page 10 for all angles.) Angle, in degrees, between specimen normal and this ion gun axis. (Uncorrected for change due to high sample voltage, e.g. on magnetic sector.)*

____________°

②? **22. Effective Beam Incident Angle (ψig)**—*Actual angle of incidence between specimen normal and this incident ion beam (corrected for high sample voltage effects).*

_______________°

②? **23. Source to Analyzer Angle (θig)**—*Angle, in degrees, between analyzer axis and this ion gun axis.*

____________°

②? **24. Specimen Azimuthal Angle (φig)**—*Angle, in degrees, between plane of this ion gun axis and plane of specimen.*

____________°

②? **25. Describe FAB if used**

____

____

____

E. Calibration

④? | **1. Mass Range Calibration—***Indicate method and accuracy of mass range calibration.*

____

____

____

____

④? | **2. Detector Saturation—***Indicate count rate at which detector saturation occurs. If Faraday cup and electron multiplier are used, indicate both below:*

____

④? | **3. Faraday Cup Scaling—***Transition count rate for electron multiplier to Faraday cup if both are used. (Enter N/A if not applicable.)*

____

④? | **4. Electron Multiplier to Faraday Cup Ratio—***Quantum efficiency of electron multiplier compared with the Faraday cup. (Enter N/A if not applicable.)*

____

Copy #______

For *each* spectrum—including calibration spectra—submitted, complete one copy of Section F.

Incomplete items for this copy should be (check one): ☐ left blank or ☐ replaced by answers from Section F, copy # ______.

F. Spectrum Data

① | **1. Spectrum #**—*Number the spectra in the data record serially from 1. Begin numbering with the required survey spectrum, followed by the spectra to be published in SSS in the order in which they should appear in the journal, followed by other spectra not to be published, and, finally, followed by calibration spectra not to be published.*

____

① | **2. Suggested Publication Status of This Spectrum**

☐ Print in *Surface Science Spectra*

☐ Enter in AVS electronic database only

① | **3. Spectrum File Name**—*Enter the file name of this spectrum as designated on the magnetic media submitted.*

____

① | **4. This is a Spectrum of the Specimen in Part B copy ________?**

③ | **5. Date**—*Enter the date that the spectrum for this region was measured. The format is YYYYMMDD.*

____

①? | **6. Data Type**

☐ Mass Spectrum (M) ☐ Depth Profile (D)

①? | **7. Abscissa Label**—*The x-axis mass spectrum or profile label:*

______________ Time (T) ______________ Cycles (C)

①? | **8. Abscissa Increment** —*Increment between successive channels.*

____

①? | **9. Mass Range of this Spectrum**

______________________ Da

①? | **10. Number of Data Channels**—*Number of measurements in the spectrum or number of data cycles.*

____

①? | **11. Number of Data Channels per Cycle**—*Number of species measured per depth profile data cycle.*

____

①? | **12. Ordinate Label**—*y-axis spectral or profile label.*

____

①? | **13. Ordinate Unit**

______________ counts

______________ counts/s

______________ atoms/cm^3

Copy # ______
Spectrum # ______

①?| **14. Species Parameters**—*Record the species ID# of each species in the depth profile data cycle along with its the mass, count time in seconds, and voltage offset. Also indicate whether the species is chosen for matrix measurement and the matrix counts measured for matrix species)*

Species ID #	Mass	Count Time (in sec.)	Voltage Offset	Peak Countrate (counts/s)

①?| **15. Matrix Species Measured**

____

①?| **16. Matrix Species**

____
counts/s

①?| **17. Matrix Detector**

☐ Electron Multiplier (E) or ☐ Faraday Cup (F)

①?| **18. Sputtering Rate**—*Erosion rate of sample in nm/sec.*

____
nm/sec

①?| **19. Ion Source Pressure**—*Pressure in Pascal (1 torr = 133 PA).*

____

①?| **20. Analyzer Pressure**—*Pressure in Pascal (1 torr = 133 PA).*

____

①?| **21. Detector Pressure**—*Pressure in Pascal (1 torr = 133 PA).*

____

①?| **22. Memory Effect Beam**—*Most recently used primary beam that might be detected in subsequent analyses, eg: CS, Ga.*

____

①?| **23. Memory Effect Matrix**—*Recently used specimen materials that might be detected in subsequent analyses.*

____

Copy # ______
Spectrum # ______

⑤ **24. Spectral Region Comment**—*Enter comments describing the spectrum more fully. For example, provide information about critical experimental variables (temperature, etc.) that should be emphasized or provide comments on the identification of peaks arising from molecular ions, etc. in the spectrum.*

G. Analysis Methods

①? | **1. Background Subtraction**—*Indicate background level subtracted.*

____

①? | **2. Quantitation Method**—*Indicate method used to calculate relative sensitivity factor in depth profile.*

____

____

____

①? | **3. Relative Sensitivity Factor (RSF)**—*Conversion factor for counts/s to atoms/cm3. Indicate species for which RSF is calculated.*

Conversion Factor ______________ Species ______________

H. Features

①? **1. Table of Features—***Please complete a table for each spectrum submitted. Identify major peaks in each mass spectrum. Designate whether the source of each is the sample, impurity, or contaminant species.*

Spectrum #	Species	Source	Mass	Label or Comment

I. Publication Options

① **1. Table of Publication Options—***Please use spectra numbering as given in Section F, Field 1, to complete the table below for spectra to be published as well as spectra not slated for publication. (Attach an additional page if necessary)*

#	Transition or Brief Description	Author's File Name	Publish (Mark ✔ for spectra to be published.)	Don't Publish (Mark ✔ for spectra not to be published.)	Calibration (Mark ✔ if the spectrum is a calibration spectrum.)

Publication Options

If there are any special requests for spectral display, such as expansion of a portion of the spectrum, curve synthesis/resolution, or shifting x-axis, please discuss them on the hard copy of the spectrum.

Peak Labeling

You ***must*** label peaks in the hard copy spectra you provide precisely as you wish them to appear in the publication.

Appendix: Contributor's Comments

Comments for the Editors—*Please add any comments or suggestions you might have concerning this form or Surface Science Spectra. We value your feedback.*

Checklist—*A complete submission must include the following:*

- ☐ Completed SIMS Contributors Form (3 copies).
- ☐ Hard copies of all spectra (3 copies).
- ☐ Digitized *RAW* spectra on magnetic disk.

Reviewer Recommendations—*Please list three names and contact information for potential reviewers of your submission:*

Record the disk characteristics below:

Medium (e.g., high-density 3.5" floppy).

Data Format (e.g., PHI: .DIF files).

Data Files Source (e.g., MS-DOS, HP BASIC).

Mail completed Contributor Form to:

SSS Editorial Office
Caller Box 13994
100 Park Drive, Suite 105
Research Triangle Park, NC 27709
Phone: (919) 361-2498
Fax: (919) 361-1378
E-Mail: sss@jvst.org

End of the SIMS Contributors Form.