DOWNLOAD PDF ADVANCES IN ELECTRONICS AND ELECTRON PHYSICS SUPPLEMENT, VOLUME 19: INVERSE PROBLEMS

Chapter 1 : OSA | Inverse design of a three-dimensional nanophotonic resonator

This indicates the central role that inverse problems have in imaging science. This special section highlights several topics of recent advances in imaging. The first five papers concern problems originating from medical imaging which can have important applications in other domains.

Correspondence should be addressed to A. This is an open access article distributed under the Creative Commons Attribution License , which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. Abstract We investigate the existence of multivortex states in a superconducting mesoscopic sphere with a magnetic dipole placed at the center. We obtain analytic solutions for the order parameter inside the sphere through the linearized Ginzburg-Landau GL model, coupled with mixed boundary conditions, and under regularity conditions and decoupling coordinates approximation. The solutions of the linear GL equation are obtained in terms of Heun double confluent functions, in dipole coordinates symmetry. The analyticity of the solutions and the associated eigenproblem are discussed thoroughly. We minimize the free energy for the fully nonlinear GL system by using linear combinations of linear analytic solutions, and we provide the conditions of occurring multivortex states. The results are not restricted to the particular spherical geometry, since the present formalism can be extended for large samples, up to infinite superconducting space plus magnetic dipole. Introduction The rapidly growing field of quantum computation requires nanoscale miniaturization of electronic circuits, way beyond the silicon era type of devices [1]. Therefore, the mesoscopic superconductors, having the size comparable to the coherence length or the magnetic penetration depth [2], are the prime candidates for construction of nanodevices among all other superconducting systems. Mesoscopic physics revealed a number of open fundamental problems like quantum confinement, quantum vortices and loops, spintronics, quantum dots, etc. The most important feature of a mesoscopic superconductor is that its shape and size have an important effect on the interplay of the magnetic field and superconducting condensate. The properties of mesoscopic superconductors are very different compared to those of bulk superconductors. While in bulk superconductors penetrating vortices form a lattice due to the vortex-vortex repulsion, in mesoscopic superconductors there is a competition between the vortex lattice and the boundary which tries to impose its geometry on the vortex lattice. It is observed experimentally that flux quantum configurations have the same symmetry as the symmetry of the shape of the sample in a homogeneous magnetic field [7]. Such systems are studied via the Ginzburg-Landau GL model. The GL equations arise from the Euler-Lagrange equations for the free Gibbs energy for a mesoscopic superconductor sample in magnetic field. These equations must be solved under specific boundary conditions: Near and below the transition temperature, theoretical calculations show that anti-vortex and giant-vortex can appear in order to maintain the symmetric vortex configuration. The response of mesoscopic superconductor samples of different shapes thin discs, spheres, cones, and rings to an external magnetic field, as well as the effect of the geometry, has been theoretically [9 â€" 18] and experimentally [7] studied. In all these cases a constant external magnetic field is applied along the the revolution axis. The small volume to surface ratio of these mesoscopic structures brings new features not found in the bulk: The giant vortex state has cylindrical symmetry and is the only kind stable in small size superconductors due to the confinement effect [13 , 14]. If the size of the sample increases, such giant vortex states can break up into multivortices through saddle-point transitions [17 , 18]. For three-dimensional objects sphere or cone the vortex lines need to intersect the surface perpendicularly in order to cancel the outward supercurrent component [9 â€" 12]. Consequently, the shape of the lines is strongly affected by the sample surface. For example, in the case of a mesoscopic sphere placed in uniform external magnetic field, the vortex lines are curved inside, packing denser in the equatorial plane, and spreading out towards the poles [10 , 11]. In this paper we consider a different situation where the magnetic field is not anymore externally generated but is generated from inside the sample, e. Such a configuration can generate confined vortex loops. The topological transition between open and closed vortex loops is controlled by the geometry, i. The goal of this paper is to demonstrate the occurrence of multivortex structures in the superconducting sphere plus magnetic dipole configuration, especially below and around the transition temperature. Our approach is based on the GL model of free energy for a finite volume. Outside of this volume the Cooper pair density describing the superconducting phase, called the order parameter, is zero [5 , 6 , 9 â€” 18]. The free energy functional is given in the GL model by [10 , 11] where is the Cooper pairs mass, is the quantum momentum operator in the presence of magnetic field, and is the intensity of the magnetic field. The temperature dependent coefficient function and the nonlinear term coupling constant are typical Landau second-order phase transition parameters [9 â€” 12]. For mesoscopic samples, one can neglect the term responsible of the expulsion of magnetic flux from the superconductor, that is last term in Eq. The traditional procedure for finding by minimizing the free energy functional Eq. In this paper we solve the GL linear problem analytically and investigate the properties of the eigenfunctions and spectrum. The contribution of the infinitesimal magnetic dipole will be approached in the dipole system of coordinates. The linearized GL equation factorizes in two ordinary differential equations, for the two orthogonal dipole coordinates, respectively. From the physical point of view such a factorization seems natural because far enough from the sphere surface, the abstract surfaces containing vortex lines follow the magnetic field stream lines, but these are exactly the dipole magnetic field lines. Along these surfaces the order parameter has slow variation or is practically constant. This gives sufficient physical reason for neglecting higher order terms in the dipole variable going along the magnetic field lines. This approximation allows integrating the two ordinary differential equations. The linear solution consists in a product of angular momentum eigenfunctions in the azymuthal coordinate, exponential function for one of the dipole coordinates, and a double confluent Heun function in the third coordinate. The final step is to come back to the fully nonlinear GL problem, and write as a linear combination of eigenfunctions of the linear GL problem, with arbitrary coefficients, and then minimize the free energy with respect to these coefficients. We dedicate a large part of the present calculations to solve exactly the linearized GL equation and to ensure the completeness and orthogonality of the linear basis because near and below the transition temperature, even the linear GL equation is sufficient to describe multivortex states. The order parameter is very small in this range, and higher order terms of can be neglected. Nevertheless, at lower temperatures, the vortex configuration does not have to match the symmetry of the system, and higher order terms of GL equation cannot be negligible [19]. It is the contribution of these nonlinear terms which generates the multivortex states at lower temperatures. The paper is organized as follows. In Section 2 we formulate the nonlinear and auxiliary linear GL problem and write the partial differential equation associated with the GL problem. In Section 3 we discuss the importance of the infinitesimal central magnetic dipole from a potential aspect, introduce the dipole coordinates, and obtain general form of the dipole equation in azimuthal symmetry plus dipole coordinates. In Section 4 we reduce the general dipole equation to a double confluent Heun equation DCHE by the help of a geometric approximation and a decoupling of the dipole orthogonal modes. We obtain analytic solutions for the DCHE as Heun series around the point at infinity, and we present some examples. In Section 5 we show how the dipole equation plus the physical boundary conditions can be brought to a Sturm-Liouville problem, and we solve the associated GL linear eigenproblem and find the eigenvalues spectrum. Examples of spectra for different configurations are presented. In Section 6 we describe how one can use the exact solutions and spectra of the linear GL problem to build approximate solutions for full nonlinear GL problem, by minimizing the free energy. We describe the procedure to identify multivortex states, give the sufficient criteria, and provide an example of equipotential surfaces with vortex structure inside the sphere. The Euler-Lagrange equations for the free energy functional Eq.

Chapter 2 : IJMS | Special Issue : Advances in Anisotropic and Smart Materials

Let g be a Riemannian metric on a bounded domain in two dimensions with a Lipschitz boundary. We show that one can determine the equivalent class of g and Î² in the W 1,p topology, p > 2, from knowledge of the associated Dirichlet-to-Neumann (DN) map Î› g,Î² to the elliptic equation div g (Î²âˆ‡ g u) = 0.

It has an interdisciplinary character and a wide range of applications such as medicine, nondestructive evaluation, microscopy and astronomy, as well as many industrial processes. The increasing demand on imaging is due to the change of role of vision. Today vision is not through eyes only but complemented, for instance, by ultrasound, x-ray computerized tomography CT , electrical impedance tomography EIT , to name but a few. Moreover, traditional imaging systems such as microscopes and telescopes are now equipped with detection instruments CCD cameras and the resulting digital images are currently processed and enhanced. Finally, the relevance of imaging for industry is best documented by a recent feature by Robert West West R In industry, seeing is believing Physics World June Today the scope of imaging has broadened and plays a central role in many different areas ranging, for instance, from remote sensing to seismology. In most cases the new imaging techniques are based on indirect measurements of physical parameters; therefore they quite naturally lead to the demand of solving linear or nonlinear inverse problems. This indicates the central role that inverse problems have in imaging science. This special section highlights several topics of recent advances in imaging. The first five papers concern problems originating from medical imaging which can have important applications in other domains. The paper by Ji et al covers a new and promising diagnostic tool in medicine: The two subsequent papers by Louis and by Defrise et al concern 3D cone beam tomography which is the most recent and advanced technique in x-ray CT. Both the case of circular and helical scanning are considered. The paper by Natterer et al is also about tomography but is intended to exploit the mathematical analogies between x-ray CT and synthetic aperture radar, achieving a unified approach to the important problem of estimating resolution in these two completely different imaging techniques. Electrical impedance tomography is an imaging technique originally proposed for medical applications which can be usefully applied also to problems of nondestructive evaluation. The next three papers are about scattering problems, a fundamental topic in imaging techniques based for instance on ultrasound and microwave sounding. The papers by Kress and by Colton et al are concerned with inverse obstacle problems presenting two different concepts: Kress gives a survey of Newton methods while Colton et al discuss linear sampling methods. Borcea et al cover the problem of detecting and imaging small or extended objects embedded in inhomogeneous media. Finally Strong and Chan discuss the application of the total variation regularization method to denoising problems and present new results which enlighten the edge-preserving and scale-dependent properties of this method.

Chapter 3 : SOLID STATE PHYSICS SOLID STATE DEVICES AND ELECTRONICS 1ST EDITION pdf file

Some Recent Advances in Multigrid Methods. Advances in Electronics and Electron Physics Volume 82, () Finite-element method for electronic structure.

This is a continuation of co-pending application Ser. What is claimed is: In a method for the micro-analysis of a surface of a sample in which a mass analyser is used to analyse secondary ions emitted from said surface in response to the impingement of primary radiation on said surface, said method comprising the steps of: A method as claimed in claim 1, wherein said extraction field is in a range of from substantially 20 Vmm-1 to 1 kVmm A method as claimed in claim 1, wherein said primary radiation comprises positive primary ions, said method also comprising flooding said surface with primary electrons. The method of claim 4 wherein said step of selecting further comprises adjusting said extracting potential so as to maximize the transmission of the spectrometer. The method of claim 1 wherein said step of selecting comprises adjusting said extraction potential so as to maximize the transmission of the spectrometer. Apparatus for the micro-analysis of a surface of sample comprising: An apparatus as claimed in claim 7, wherein said second electric potential is substantially equal to earth potential. An apparatus as claimed in claim 7, and also comprising transfer optics disposed between said extraction means electrode and said entrance of said mass analyser. An apparatus as claimed in claim 7 wherein said mass analyser comprises an electric sector and a magnetic sector. An apparatus as claimed in claim 7, also comprising: Apparatus for the micro-analysis of a surface of a sample comprising: An apparatus as claimed in claim 14, wherein said second electric potential is substantially equal to earth potential. An apparatus as claimed in claim 14, and also comprising transfer optics disposed between said extraction means electrode and said entrance of said mass analyser. An apparatus as claimed in claim 14, in which said mass analyser comprises an electric sector and a magnetic sector. An apparatus as claimed in claim 14, and also comprising: An apparatus as claimed in claim 14, also comprising: Field of the Invention This invention relates to a method and apparatus for the micro-analysis of the surface of a sample, and particularly to secondary ion mass spectrometry. Description of the Prior Art In secondary ion mass spectrometry SIMS , a sample is bombarded by primary ions causing the emission of secondary ions characteristic of the composition of the surface layers of the sample. More generally, secondary ions may be caused to be released from a surface by other forms of primary radiation which may comprise laser radiation, electrons or neutral atoms. After release, the secondary ions are collected and then analysed by the techniques of mass spectrometry. For example, a SIMS instrument may comprise a double focusing mass spectrometer having an electrostatic energy-focusing analyser and a magnetic sector mass analyser. Alternatively a SIMS instrument may comprise a time-of-flight analyser. Two-dimensional images of the surface of a sample may be obtained by direct imaging of an area on a surface, or by scanning a finely focused probe across a surface. Liebl in Scanning, volume 3, pages 79 to 89, In general, the secondary ions are collected from the surface by an extraction field and they pass, in some instances via transfer optics, to the mass analyser. The secondary ions are thus accelerated in the extraction field so that they arrive at the mass analyser with a velocity suitable for the mass analyser to function. For example, a magnetic sector mass spectrometer would require the ions to be accelerated through several kV. It is usually convenient to maintain the entrance to the mass analyser substantially at earth potential and to maintain the sample at an electric potential of a polarity to repel the ions of interest and of a strength which will accelerate the secondary ions to the velocity required for analysis in the mass analyser. In conventional instruments, as illustrated by H. Liebl op cit , an earthed extraction electrode is positioned close to the surface of the sample to establish an extraction field. There is an advantage, particularly for direct imaging instruments, in having a high extraction field strength because, as discussed for example by G. Slodzian op cit , the minimum distance that can be resolved between two points on a surface is inversely proportional to the extraction field strength. An alternative arrangement, intended to increase the extraction field near to the surface and so improve spatial resolution, has been described by H. Liebl in Optik, volume

53, number 1, , pages 69 to In that apparatus the extraction field is increased by applying an attractive potential to the extraction electrode. The geometry of H. In electron microscopes the potential of the electrode nearest to the surface, known as the Wehnelt of the Bruche-Johansson lens, is adjusted to facilitate fine focusing of the image. It is also known, as in the non-imaging mass spectrometer described in United Kingdom Patent No. In that instrument the extra electrode is biased to establish potential barrier through which the secondary ions must pass before entering the mass spectrometer. The purpose of the extra electrode is to reduce the flux of ions originating in the residual gas which would otherwise interfere with the spectrum of the ions from the surface. When SIMS is used to study a sample of electrically insulating material, electrical charge may accumulate on the surface near to the site of incidence of the primary ion beam. The accumulated charge may repel the incident beam, and reduce or even eliminate the secondary ion emission. The mechanism of the charging process depends upon the polarity of the incident ions, the direction of the extraction field, and the nature of the sample. Contributions to the balance of charge at the surface come from the primary ion beam, secondary ions and secondary electrons, though in general the secondary ion yield is low and is therefore not a major contribution to the charge balance. The processes of surface charging have been discussed in detail by H. Morgan in the Journal of Applied Physics, volume 47, pages to , One known method of alleviating the accumulation of surface charge is to deposit a conductive grid onto the surface, though this may introduce contaminants from the material of the grid into the spectra. Werner and Morgan have described how a diaphragm in contact with the surface and having an aperture larger than the extraction area of secondary ions can also reduce surface charge. Moreover, specifically to alleviate negative charge which accumulates during bombardment by negative primary ions, such a diaphragm may be placed close to but not in contact with the surface and biased slightly positive with respect to the surface; the charge is then reduced because secondary electrons are attracted to the diaphragm. However, like a grid, a diaphragm may inhibit the detection of secondary ions from the sample if the primary ions strike the conductive material and if that material has a significant sputter yield: Werner and Morgan acknowledge that the diaphragm does restrict lateral imaging of the sample. In SIMS, if positive primary ions are used to analyse insulating samples a positive charge will tend to accumulate on the surface. For this to neutralise the surface charge there must be a balance between the significant currents, which generally are: Clearly, if the primary electron flood current is too great, the surface can become negatively charged near to the site of beam impact. When the sample is biased negative with respect to the earthed extraction electrode, in order to extract negative secondary ions, an electron flood beam initially of high energy, will be retarded and will reach the surface with low energy. Slodzian et al, in Microbeam Analysis , published by the San Francisco Press Inc, page 78, has described apparatus in which a high-energy electron beam is directed perpendicularly towards a surface. Electrons in the incoming beam are slowed down as they approach the surface, and subsequently neutralise the positive surface charge. Alternatively, when the sample is biased positive in order to extract positive secondary ions, a primary electron flood beam can be directed and accelerated towards the surface. However, if the flood current is too large the surface may charge negatively and inhibit the release of positive secondary ions. Excessive negative charging may be alleviated by the release of secondary electrons, though when the sample is at a positive potential these will be attracted back to the surface by the extraction field. The balance between currents in this case has been discussed by Werner and Morgan who concluded that secondary electron emission could effectively reduce the local negative charging due to excessive flood current only if the sample were to charge up to the extraction electrode potential, but this Would drastically reduce the secondary ion current. In apparatus for SIMS employing negatively charged primary ions an insulating sample may charge negatively, with consequent degradation of performance, and even with a neutral primary beam there may be some charging of the surface resulting from the loss of secondary particles, notably secondary electrons. Further problems in SIMS arise in the study of samples with irregular surfaces. Surface roughness causes variation in the angles at which secondary particles leave the surface and corresponding variation in the intensity of the detected secondary signal. In summary, while SIMS is an established and important technique of surface analysis there are, nevertheless, aspects which could usefully be improved, particularly in the analysis of insulating samples, or samples with irregular surfaces. It is a further object of this invention to provide an improved apparatus adapted for the micro-analysis of the surface of a sample. According to one aspect of the invention there is provided a method for the micro-analysis of a surface of a sample in which a mass analyser is used to analyse secondary ions emitted from said surface in response to the impact of primary radiation on said surface, said method comprising: By this method the extraction field, can be set or varied independently of the accelerating potential difference between the sample and the mass analyser. In a preferred embodiment of said method the primary radiation comprises positive primary ions and said method also comprises flooding said surface with primary electrons. According to another aspect of the invention there is provided an apparatus adapted for the micro-analysis of the surface of a sample, comprising: In said apparatus, described above, positively charged secondary ions are extracted from the sample and subsequently accelerated towards the mass analyser. Hence, the invention provides apparatus which, in one aspect is adapted to extract and subsequently mass analyse positively charged secondary ions from the surface of a sample, while in another aspect is adapted to extract and subsequently mass analyse negatively charged secondary ions from the surface of a sample. The terms "less positive" and "more positive" are intended to include not only potentials which are positive with respect to earth, but also negative potentials satisfying the relations as defined. Likewise, "less negative" and "more negative" include positive as well as negative potentials with respect to earth. Preferably, the potential of the entrance to said mass analyser is set substantially equal to earth potential, conventionally the zero of potential. The invention allows the potential of the extraction means, and hence the extraction field which exists between the sample and the extraction means, to be set or varied independently of the accelerating potential difference between the sample and the mass analyser. As stated, the potential difference between the sample and the entrance to the mass analyser is maintained to be substantially equal to the accelerating potential difference required by the mass analyser to accelerate the secondary ions to a velocity Suitable for analysis. Preferably the mass analyser comprises a double-focusing mass spectrometer, comprising an energy-focusing electric sector and a magnetic sector; such analysers typically require the ions to be accelerated through a potential difference in the range of 2 kV to 10 kV. In prior SIMS instruments the extraction field is determined by this accelerating potential difference, whereas the extraction field in this invention is independent of the accelerating potential and is reduced from that of prior SIMS instruments. We have found that the reduced extraction field is particularly effective in improving performance, in terms of increased signal strength and signal uniformity in the study of insulating samples and also for samples with irregular surfaces. This is surprising because prior work has been directed towards increasing the extraction field near to the sample. The reasons for the improved performance are not fully understood, though in the case of insulating samples it may be that the reduced field in some instances allows charge to leave the surface in the form of secondary particles which would otherwise be trapped on the surface, while for irregular surfaces the improved performance may be a consequence of the effect of the reduced extraction field on the initial local acceleration of the secondary ions away from the surface irregularities; no general mechanism has yet been established. The invention is not restricted to apparatus comprising a double-focusing mass spectrometer, but may alternatively comprise any type of mass analyser in which an extraction field is applied to the sample and an accelerating field is also employed; in one alternative embodiment the invention comprises an energy-focusing time-of-flight analyser. In a preferred embodiment of the invention the primary radiation comprises positive primary ions, alternatively the primary radiation may comprise negative primary ions, or neutral atoms or laser radiation. In a preferred embodiment of the invention the means for irradiating the surface of the sample with a flux of primary radiation comprises a primary ion gun. It is also preferred that the apparatus comprises means for irradiating the surface with a flux of primary electrons, the purpose of which is to neutralise any positive charge which may accumulate on the surface, particularly during bombardment by positive primary ions. The means for irradiating the surface with a flux of primary electrons may conveniently comprise an electron flood gun. In a preferred embodiment of the invention the extraction means comprises an extraction electrode having an extraction aperture. Also in a preferred embodiment there is provided transfer optics disposed between the extraction means and the mass analyser. The transfer optics comprises an entrance electrode which has an entrance aperture and is maintained at an electric potential which may be adjustable, or may be set substantially at earth potential; in a preferred embodiment the entrance electrode of the transfer optics is maintained at substantially the same electric potential as the entrance to the mass analyser. Hence, in a preferred embodiment of the invention the secondary ions are extracted from the surface of the sample in an extraction field, are directed towards the extraction electrode, pass through the extraction aperture and are then accelerated towards the entrance of the transfer optics. Preferably the potential of the entrance to the transfer optics and the potential of the entrance to the mass analyser are both substantially equal to earth potential, and the potential of t he sample is numerically equal to the accelerating potential difference required by the mass analyser. Preferably the potential of the extraction means, which is said third electric potential, is selected and maintained at a value which substantially maximises the transmission of the spectrometer, thereby giving substantially maximum signal strength and quality of the spectra and images obtained. Also we have found an extraction field in a range of from substantially 0. In a preferred embodiment of the invention the sample is disposed with its surface at a distance of subtantially 5 mm from the extraction electrode. To allow access for the primary ion beam to be incident upon the surface of the sample a first access aperture may be formed in the extraction means through which primary ions pass from the primary ion gun to the surface. There may also be a second access aperture formed in the extraction means to allow primary electrons to pass from the electron flood gun to the surface.

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Chapter 4 : Bibtex entries of Daniel B. Szyld

Folksonomy: A system of classification derived from the practice and method of collaboratively creating and managing tags to annotate and categorize content; this practice is also known as collaborative tagging, social classification, social indexing, and social tagging.

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Chapter 5 : Vortex Structures inside Spherical Mesoscopic Superconductor Plus Magnetic Dipole

Volume 19 - Point Defects and Their Structure in Nonmetallic Solids edited by B. Henderson and A. E. Hughes Volume Physics of Structurally Disordered Solids.

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Chapter 6 : Mathematics Journals

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View abstract View article PDF Abstract One-way wave operators are powerful tools for use in forward modelling and inversion. Their implementation, however, involves introduction of the square root of an operator as a pseudo-differential operator. Furthermore, a simple factoring of the wave operator produces one-way wave equations that yield the same travel times as the full wave equation, but do not yield accurate amplitudes except for homogeneous media and for almost all points in heterogeneous media. Here, we present augmented one-way wave equations. We show that these equations yield solutions for which the leading order asymptotic amplitude as well as the travel time satisfy the same differential equations as the corresponding functions for the full wave equation. Exact representations of the square-root operator appearing in these differential equations are elusive, except in cases in which the heterogeneity of the medium is independent of the transverse spatial variables. Here, we address the fully heterogeneous case. Singling out depth as the preferred direction of propagation, we introduce a representation of the square-root operator as an integral in which a rational function of the transverse Laplacian appears in the integrand. This allows us to carry out explicit asymptotic analysis of the resulting one-way wave equations. To do this, we introduce an auxiliary function that satisfies a lower dimensional wave equation in transverse spatial variables only. We prove that ray theory for these one-way wave equations leads to one-way eikonal equations and the correct leading order transport equation for the full wave equation. In fact, we prove that applying the WEM imaging condition to these newly defined wavefields in heterogeneous media leads to the Kirchhoff inversion formula for common-shot data when the one-way wavefields are replaced by their ray theoretic approximations. This extension enhances the original WEM method. The objective of that technique was a reflector map, only. The underlying theory did not address amplitude issues. Computer output obtained using numerically generated data confirms the accuracy of this inversion method. However, there are practical limitations. The observed data must be a solution of the wave equation. Therefore, the data over the entire survey area must be collected from a single common-shot experiment. Multi-experiment data, such as common-offset data, cannot be used with this method as currently formulated. Research on extending the method is ongoing at this time.

Chapter 7 : Inverse Problems, Volume 19, Number 5, October - IOPscience

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Chapter 8 : People - Aachen Institute for Advanced Study in Computational Engineering Science

Journal of the History of Science Society LNP ISO Survey of a Dusty Universe IPBS Isotopes in the Physical and Biomedical Sciences IJGI ISPRS International Journal of Geo-Information JPRS ISPRS Journal of Photogrammetry and Remote Sensing IsJT Israel Journal of Technology ISRAA ISRN Astronomy and Astrophysics ISSIR ISSI Scientific.

Chapter 9 : Download Methods For Solving Inverse Problems In Mathematical Physics

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