Best Practices: Career guidance and Placement

Career Guidance

Date	Programme	Lecture delivered by	No of students present
09/07/2014	Workshop on employment in different organizations for the SC/ ST students	Debashis Bhattachariya, Professional Counsellor	72
25/07/14	Training and placement CPAT	Do	96
04/08/2014 21/08/2014	Workshop on Beautician course for the students and employment	Do	17 18
18/11/2014	Workshop on employment	Do	38
13/01/2015	Workshop on employment	Do	34
05/02/2015	Do	Do	37
04/03/2015	Do	Do	05
19/03/2015	Free training and placement of minority and SC/ST	Do	50

Placement of Students

Sl. No	Name of the candidate	Permanent Address of the Candidate	Gender	Date of Birth	Mobile No./e-Mail ID	Company Name & Contact Person	Full Address with Mobile /Tel.No./e-Mail ID	Present Position Held & Date of Joining	Present Status
1	2	3	4	5	6	7	8	9	10
01	Sabitri Tudu	Atish Tudu Vill- Ramnagar,P.O.- Menidih, P.S.- Puncha Dist Purulia Pin 723151	Female	03.10.1991	9647947928	Harsh Impex	40, jay bBibi Road, Plot No. 76 Ghusuri, Howrah Pin- 711107	Machine Operator Injection moulding 06.01.2015	Currently Working
02	Sukuntala Saren	Sahadeb Saren Vill- Haridih, P.O.- Bagda, P.S.- Puncha Dist- Purulia Pin- 723151	Female	14.11.1990	9800414775	Pointec Pens & energy Pvt.Ltd	26'A' ATTIBELE, INDUSTRIAL AREA ATTIBELE, Bengaluru 562107, Karnataka	Machine Operator Injection moulding 02.01.2015	Currently Working
03	Sanaka Tudu	Jagal Tudu Vill- Ramnagar, P.O.- Menidih, P.S.- Puncha, Dist- Purulia Pin- 723151	Female	03.05.1995	9564656459	Harsh Impex	40, jay bBibi Road, Plot No. 76 Ghusuri, Howrah Pin- 711107	Machine Operator Injection moulding 06.01.2015	Currently Working
04	Palarani Murmu	Anil Murumu, Vill- Dhudia, P.O.- Menidih, P.S- Puncha, Dist- Purulia, Pin- 723151	Female	03.04.1992	8670546783		SELF EMPLOYED		
05	Abhijit Murmu	Baburam Murmu, Vill- Parashigora, P.O.- Lekhra, P.S.- Puncha, Dist- Purulia, Pin- 723151	Male	12.04.1990	800160948	Pointec Pens & energy Pvt.Ltd	26'A' ATTIBELE, INDUSTRIAL AREA ATTIBELE, Bengaluru 562107, Karnataka	Machine Operator Injection moulding 02.01.2015	Not Working
06	Ananda Kisku	Rabipada Kisku, Vill- Laharla, P.O.- Bhagbandh, P.S.- Puncha, Dist- Purulia, Pin- 723151	Male	01.02.1993	9679142071	Kheria Autocomp Limited, Vinay Kheria	Plot No B6, B7& B8, Tata Vendor Park, Revenue Survey No.1, Village Northkotpura	Machine Operator Injection moulding 06.01.2015	Currently Working
07	Ashok Kr. Mudi	Ajodhya Mudi Vill- Chakia, P.O.- Badra, P.S.- Puncha, Dist- Purulia, Pin– 723151	Male	01.03.1993	8016922433	Kheria Autocomp Limited, Vinay Kheria	Plot No B6, B7& B8, Tata Vendor Park, Revenue Survey No.1, Village Northkotpura	Machine Operator Injection moulding 10.11.2014	Currently Working
08	Banamali Mandi	Swapan Mandi, Vill- Sardardih, P.O.- Lakhpur, P.S.- Puncha, Dist- Purulia, Pin –723151	Male	05.04.1991	8670258201	Harsh Impex	40, jay bBibi Road, Plot No. 76 Ghusuri, Howrah Pin- 711107	Machine Operator Injection moulding 06.01.2015	Currently Working
09	Bikram Munda	Sripati Munda, Vill- Mohangora, P.O.–Napara, P.S.–Puncha, Dist- Purulia, Pin –723151	Male	12.04.1987	8391058792	Pointec Pens & energy Pvt.Ltd	26'A' ATTIBELE, INDUSTRIAL AREA ATTIBELE, Bengaluru 562107, Karnataka	Machine Operator Injection moulding 02.01.2015	Currently Working
10	Loychand Munda	L.T. Ganesh Munda, Vill- Mohangora, P.O.- Napara, P.S.–Puncha, Dist- Purulia,Pin 723151	Male	25.11.1994	8670268328	Harsh Impex	40, jay bBibi Road, Plot No. 76 Ghusuri, Howrah Pin- 711107	Machine Operator Injection moulding 06.01.2015	Currently Working
11	Manindra Hansda	Lt. Madan Hansda Vill– Arali, P.O.– Dhengakendh, P.S.–Puncha, Dist–Purulia, Pin 723151	Male	12.05.1991	9800079409/ 9635077459	Kheria Autocomp Limited, Vinay Kheria	Plot No B6, B7& B8, Tata Vendor Park, Revenue Survey No.1, Village Northkotpura	Machine Operator Injection moulding 10.11.2014	Currently Working
12'	Mitan beshra	Lambodar Beshra, Vill– harade, P.O.– Kumra, P.S.– Bandwan, Dist-	Male	05.08.1989	8116323159	Kheria Autocomp Limited, Vinay	Plot No B6, B7& B8, Tata Vendor Park, Revenue Survey No.1,	Machine Operator Injection moulding	Currently Working

		P.O.–Napara, P.S.- Puncha, Dist- Purulia, Pin- 723151				Pen&Energy Pvt.Ltd. Mr. Parashiva Murty	Industrial area, Bangalore, 09243456405,hr pointec@gmail.com	may 2015	Working
14	Sukumar Sahis	Vill Napara, P.O. Napara, P.S.- Puncha, Dist- Purulia, Pin 723151	Male	25.04.1994	9635033362	M/S Ostern Pvt.Ltd.,r Sovan samanta	F-19 Food Park, Phase II Kandua Sankrail Dhulagrah, howrah	Trainee Operator	Currently Working
15	Tapan Kumar Rajak	Vill–Laulara, P.O.–Laulara, P.S. Puncha, Dist- Purulia, Pin –723151	Male	09.07.1992	9933909750	M/S Tenty Marketing Pvt.Ltd., Kasba, Kolkata, West Bengal	TENTY MARKETING CO.PVT.LTD. PPF-19, POLYPARK, P.S- SANKRAIL DHULAGORI, HOWRAH– 711302.	Operator, 29th April 2015	Currently Working

Best Practices: Publication

PHYSICAL REVIEW D **90**, 047504 (2014)

Canonical formulation of scalar curvature squared action in higher dimensions

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(Received 14 May 2014; revised manuscript received 30 June 2014; published 29 August 2014)

The canonical formulation for an action containing a scalar curvature squared term (R^2) in arbitrary dimension has been performed in a Robertson-Walker minisuperspace model. The quantum dynamics does not alter significantly from the same in four dimensions, while the continuity equation picks up a particular operator-ordering index. The classical solution is also at par with the one presented by Starobinsky for $k = 0$ and matches with the extremum of the effective potential. Semiclassical approximation peaks around the classical solution.

I. INTRODUCTION

Although the action $A = \int d^4x \sqrt{-g}[\frac{1}{16\pi G} + \beta R^2 + \gamma R_{\mu\nu} R^{\mu\nu}]$ is renormalizable, admits a Newtonian limit in the weak field approximation, and is asymptotically free, it contains ghosts in the form of massive spin-2 excitations that are negative definite. It is possible to cast the theory so that massive spin-2 eigenstates of the free field Hamiltonian have positive definite energy, but then negative norm in the state vector space emerges, destroying the unitarity of the S matrix. With $\gamma = 0$, ghosts disappear, but ultraviolet catastrophe reappears. So, although R^2 term does not improve ultraviolet behavior, it is in no way responsible for the violation of unitarity.

No attempt to formulate renormalized quantum theory of gravity could avoid the presence of R^2 term from the action [1–4]. In the absence of a complete theory of gravity, quantum cosmology was initiated with the anticipation of extracting new physics leading to a path towards quantum gravity. Therefore, to study the issue of quantum cosmology, it is required to cast the action containing an R^2 term in canonical form. A host of canonical formalisms of higher-order theory of gravity appears in the literature [5–13]. However, even for an action $A = \int (\alpha R + \beta R^2) \sqrt{-g} d^4x$, all the formalisms produce either a modified Wheeler-DeWitt equation, which does not provide standard quantum mechanical probabilistic interpretation, or a Schrödinger-like equation, which suffers from the disease of the loss of unitarity. This problem was circumvented by Sanyal and Modak [14] and Sanyal [15] by judiciously choosing the auxiliary variable required for canonical formulation. In the Robertson-Walker (RW) minisuperspace model containing the lapse function $N(t)$, it was possible to cast the above action in the canonical form [16] $A = \int [h_{ij} p^{ij} + K_{ij} \Pi^{ij} - N\mathcal{H}] d t d^3 x$, where h_{ij} and K_{ij} are the metric on three-space and the extrinsic curvature tensor, p^{ij} and Π^{ij} are their canonically conjugate momenta,

respectively, and $\mathcal{H}$ is the constrained Hamiltonian. It was noticed that only a particular choice of auxiliary variable leads to a viable quantum cosmological model, since such choice yields a Schrödinger-like equation for which the effective Hamiltonian turned out to be Hermitian. Thus the standard form of a continuity equation and the quantum mechanical probabilistic interpretation are admissible. Classical field equations were found to admit solutions obtained by Starobinsky [17]. Further, WKB approximation to the wave function turned out to be oscillatory, being peaked around a classical inflationary solution. From the standpoint of dimensional regularization, it is important to quantize R^2 gravity in spaces of higher dimension. A model of multidimensional R^2 gravity finds natural expression in the Kaluza-Klein approach. Additionally, multidimensional R^2 gravity follows from superstring theory in $D = 10$ as an effective theory. In view of the nice features realized in four dimensions, here we perform the canonical formulation of the same in arbitrary higher dimensions.

In the following section we take up the action and briefly review earlier attempts in this regard. In Sec. III we follow our earlier technique [16] to formulate canonical action and perform semiclassical approximation. We conclude in Sec. IV.

II. THE ISSUE OF THE BOUNDARY TERM

In case of gravity, no nontrivial Lagrangian $\mathcal{L}_g$ can be constructed from the metric $g_{\mu\nu}$ and its first derivatives alone. Even for Einstein-Hilbert action, the Lagrangian depends on second derivatives of the metric, in the form $\mathcal{L}_g[g, \partial g, \partial^2 g]$. Under metric variation, setting $\delta g_{\mu\nu}|_{\partial V} = 0$, Einstein-Hilbert action in D dimensions yields a surface term which is identified with the Gibbons-Hawking-York boundary term $(\Sigma_{g_{ij}})$ [18]. Therefore, the complete gravitational action for general relativity is

$$A_E = \frac{1}{16\pi G} \int_V \sqrt{-g} d^D x R + \frac{1}{8\pi G} \oint_{\partial V} d^{(D-1)} x \sqrt{h} K. \quad (1)$$

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3D supramolecular networks of Mn(II)-5-sulfosalicylate assembled with 4,4'-dipyridyl N,N'-dioxide and 4,4'-dipyridyl: Structure, photoluminescence and DFT calculations

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ARTICLE INFO

ABSTRACT

The supramolecular complexes $\{[Mn_2(HSsal)_2(dpyo)_2(H_2O)_6]\cdot 2(H_2O)\}$ (1) and $\{[Mn(4,4'-bipy)(H_2O)_4]\cdot (HSsal)\cdot(H_2O)\}_n$ (2) [dpyo = 4,4'-dipyridyl N,N'-dioxide; 4,4'-bipy = 4,4'-bipyridine and HSsal = 5-sulfosalicylate dianion] have been synthesized and structurally characterized. Complex 1 is a rare Mn dinuclear species realized with bridging dpyo and coordinated HSsal ligands to form a 3D architecture through H-bonding and $\pi\cdots\pi$ interactions. In complex 2, $Mn(H_2O)_4$ fragments are bridged by 4,4'-bipy, giving rise to a 1D chain. The adjoining chains encapsulate HSsal anions to give a 3D structure through a $R_2^2(12)$ H-bonding synthon and $\pi\cdots\pi$ interactions. The complexes were tested in association with several aromatic compounds, since they exhibit intense fluorescence ($\lambda_{ex} = 223$ nm, $\lambda_{em} = 308$, 325, 353 and 393 nm for 1; $\lambda_{ex} = 237$ nm, $\lambda_{em} = 312$, 335, 348 and 394 nm for 2). The outcome of DFT calculations on model compounds is discussed and compared with the experimental X-ray structural data.
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1. Introduction

Development in the field of supramolecular chemistry [1–4] and crystal engineering [5–7] during the last few decades is noteworthy, with a large number of applications in various fields of chemistry such as molecular recognition [8,9], sensors [10], catalysis [11], host-guest chemistry [12–14], surface patterning [15,16], electrical conductivity [17], molecular devices [18] and non-linear optics [19]. However the full potential of this branch of chemistry is yet to be realized. In the area of crystal engineering, the professed goal is the designed synthesis of crystalline materials where the molecular organization in the solid state can be reliably predicted from the knowledge of tectons. The principle of designed synthesis of crystalline functional materials to some extent has been rationalized, but a multitude of factors, especially weak forces such as H-bonding [20–26], π–π [27–31] and C–H⋯π interactions [32,33], are often involved, and accurate prediction of the outcome of the crystallization process is object of study. In this respect, it is interesting to elucidate the role of weak interactions in crystal packing when a number of them are simultaneously operative. The design of molecular materials involves additional considerations, such as the stereochemical information encoded in metal ions, revealed by the preferred coordination geometry of metal centers induced by the properties of ligands. 4,4'-Bipyridine (4,4'-bipy) and its analogues containing two 4-pyridyl donor units have been used as bridging ligands in the construction of inorganic networks due to their versatile coordination modes, being capable of acting as bridging species to form polymeric complexes [34,35] or discrete dimers [36,37], or as a unidentate ligand [38,39]. In recent times, 4,4'-dipyridyl-N,N'-dioxide (dpyo) has been increasingly used in crystal engineering as a ligand for tuning supramolecular architectures of different topologies and the properties of the material, due to its advantageous features: (i) it can act as a long spacer, which allows the construction of microporous materials with large cavities or channels [30]; (ii) it possesses different hapticity in coordination (cis and trans μ-4,4'; μ-4,4,4' and μ-4,4,4',4'); (iii) it is able to form H-bonding and π–π interactions; (iv) its high melting point permits the generation of materials with high thermal stability [40]. On the other hand, 5-sulfosalicylic acid, with three potential coordinating groups, –OH, –COOH, and –SO₃H, shows versatile coordination modes [41], besides the ability to form a supramolecular network through H-bonds and π–π stacking. A literature survey reveals a good number of 4,4'-bipy and dpyo containing networks [36–40], but to the best of our knowledge only two complexes containing 4,4'-bipy and 5-sulfosalicylate have been reported [42]. Thus the potential of 4,4'-bipy/dpyo in

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