

## Event Report Format

734

S. No.	Particulars	Response												
1	Name of the Event/ Activity	Distinguished talk on "Photonics-aided Emerging Quantum Communication Applications"												
2	Program Category (FDP/ EDP/ UHV-FDP/ Conference/ Workshop/ Webinar/ Seminar/ Invited Talk/ Distinguished Lecture/ Induction Program/ Orientation Program/ Hackathon/ GIAN Course/ Sort-Term Course/ Training Session/ Cultural Program/ Competition/ Sports Event/ ISR Activity/ Charity Program/ Swachhta Program/ Healthcare Activity/ Others)	Technical Talk												
3	Theme of the Event (Technology/ Innovation/ Research Methodology/ IPR/ Start-up/ Entrepreneurship/ Skill Development/ Stress Management/ Motivation/ Gender Sensitization/ Women Empowerment/ Career Development/ Leadership/ Awareness/ Social Service/ Mentoring/ Road Show/ Exhibition/ Others)	Technology												
4	Program Level (National/ International/Departmental/ Institutional/ District/ State)	International												
5	Program Category (Institute Lead Activity/ Student Lead Activity)	Institute Lead Activity												
6	Organized for? (Faculty/ Staff/ Students/ Industry Persons/ Open for All)	Faculty/Students												
7	Program Starting Date (dd/mm/yyyy)	15/03/2024												
8	Program Ending Date (dd/mm/yyyy)	15/03/2024												
9	Program Duration (in hours)	2 hrs												
10	Event Organized by (Department/ Centre/ Club/ Society/ Group)	Centre for Next Generation Communication and Networking												
11	Name and Contact details of Coordinator(s)	Dr. Anirudh Agarwal (9460478956)												
12	Details of External Partner or Sponsoring Body/ Organization, if any?	NA												
13	Mode of Conduction (Online/ Offline/ Hybrid)	Hybrid												
14	Venue of the Event	VC Room												
15	Details of Participants	<table border="1" style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td>No. of Internal Students</td> <td style="text-align: center;">7</td> </tr> <tr> <td>No. of Internal Faculty</td> <td style="text-align: center;">8</td> </tr> <tr> <td>No. of Internal Staff</td> <td style="text-align: center;">0</td> </tr> <tr> <td>No. of External Students</td> <td style="text-align: center;">0</td> </tr> <tr> <td>No. of External Faculty</td> <td style="text-align: center;">0</td> </tr> <tr> <td>No. of External Staff</td> <td style="text-align: center;">0</td> </tr> </tbody> </table>	No. of Internal Students	7	No. of Internal Faculty	8	No. of Internal Staff	0	No. of External Students	0	No. of External Faculty	0	No. of External Staff	0
No. of Internal Students	7													
No. of Internal Faculty	8													
No. of Internal Staff	0													
No. of External Students	0													
No. of External Faculty	0													
No. of External Staff	0													

RFP

		No. of Industry Persons	0								
		No. of International Participants	0								
		<b>Total Participants</b>	<b>15</b>								
16	Details of Invited Speakers/ Experts/ Industry Persons (Name, Designation, Organization Name)	<b><u>See the Attached Flyer</u></b>									
17	Funding details	<table border="1"> <tr> <td>Expenses from the Institute Fund</td> <td><b><u>INR 5000/-</u></b></td> </tr> <tr> <td>Grant received from Sponsoring or Partnering Body/ Organization</td> <td><b><u>0</u></b></td> </tr> <tr> <td>Grant received from Govt. Bodies</td> <td><b><u>0</u></b></td> </tr> <tr> <td><b>Total Expenditure</b></td> <td><b><u>INR 5000/-</u></b></td> </tr> </table>		Expenses from the Institute Fund	<b><u>INR 5000/-</u></b>	Grant received from Sponsoring or Partnering Body/ Organization	<b><u>0</u></b>	Grant received from Govt. Bodies	<b><u>0</u></b>	<b>Total Expenditure</b>	<b><u>INR 5000/-</u></b>
Expenses from the Institute Fund	<b><u>INR 5000/-</u></b>										
Grant received from Sponsoring or Partnering Body/ Organization	<b><u>0</u></b>										
Grant received from Govt. Bodies	<b><u>0</u></b>										
<b>Total Expenditure</b>	<b><u>INR 5000/-</u></b>										
18	Details of the Winners along with Prize details? in case of Competition/ Hackathon/ Debate/ Sports event	<b><u>NA</u></b>									
19	Brief note about the event	The Centre for Next Generation Communication and Networking at LNMIIT organized a distinguished talk on " <b>Photonics-aided Emerging Quantum Communication Applications</b> ", on March 15, 2024, in hybrid mode. The major focus of this talk was on highlighting the integration of photonics nanodiode technology in the area of quantum communication for high data rate, high security and ultra-low latency.									
20	Program Outcome? If any	Knowledge Enhancement of Participants in the Area of Photonics and its applications in Quantum Communication									
21	Google Drive Link of Geotagged and Simple Photographs (Please upload photographs on your google drive and share the link here with editing rights)	<b><u><a href="https://photos.app.goo.gl/X4dQdeqwT47vU8D2A">https://photos.app.goo.gl/X4dQdeqwT47vU8D2A</a></u></b>									

**Supporting Documents to be attached with the report:**

1. Copy of participation certificates if issued to the participants: **NA**
2. Copy of Poster/ Flier/ Brochure of the activity: **Attached**
3. Copy of the email/notice circulated: **Attached**
4. List of the participants (Faculty/ Staff/ Students/ External Participants etc.): **Attached**
5. List of the Winners, if any: **NA**
6. Copy of Agreement/ MoU in case of collaborative activity: **NA**
7. At least 5 Geotagged Photographs: **Provided in Google Drive Link**
8. At least 5 Simple Photographs: **Provided in Google Drive Link**

**Date of report submission: 19-03-2024**

**Dr. Anirudh Agarwal**

**Name and Signature of the Coordinator(s)**

---

**Fwd: Invitation to the Distinguished Talk by Prof. Enrico Prati on 15th March 2024**

---

Dean Office <deanoffice@lnmiit.ac.in> Wed, Mar 13, 2024 at 9:30 AM  
To: LNMIIT\_Faculty <faculty@lnmiit.ac.in>, Visiting Faculty <visitingfaculty@lnmiit.ac.in>, PhD <phd@lnmiit.ac.in>  
Cc: "Dr. Soumitra Debnath" <soumitra@lnmiit.ac.in>

----- Forwarded message -----

From: **Dr. Soumitra Debnath** <soumitra@lnmiit.ac.in>  
Date: Tue, Mar 12, 2024 at 11:52 PM  
Subject: Invitation to the Distinguished Talk by Prof. Enrico Prati on 15th March 2024  
To: Dean Office <deanoffice@lnmiit.ac.in>  
Cc: Dr. Soumitra Debnath <soumitra@lnmiit.ac.in>

Dear All,

I am pleased to invite you to attend a distinguished talk on "**Photonics-aided Emerging Quantum Communication Applications**" being organized by the Centre for Next Generation Communication and Networking (CNGCN).

The speaker of the event is **Prof. Enrico Prati**, who is currently a Professor in the Department of Physics, University of Milan, Italy.

The details of the event are as follows:

Date: **15th March 2024**  
Time: **03:00 PM - 04:00 PM (IST)**  
Venue: **VC Room**  
Google Meet Link: <https://meet.google.com/prx-aogg-bov>

The abstract of the talk, along with the Speaker's details, is provided in the attached flyer for your reference.


With best regards,  
Soumitra.

@Dean Office Please forward it to the faculty and PhD students' mailing groups.

--

=====  
Soumitra Debnath, Ph.D. (Dept. of E&ECE, IIT Kharagpur)  
Associate Professor, Dept. of Electronics and Communication Engineering  
The LNM Institute of Information Technology (Deemed-to-be-University)  
Rupa-ki-Nangal, Post: Sumel, Via: Jamdoli, Jaipur - 302 031, Rajasthan, India  
Website: [www.lnmiit.ac.in](http://www.lnmiit.ac.in)  
Phone No.: +91-9950170984 (Jaipur)/ +91-9434565534 (Kolkata)  
Alternate E-mail: [soumitra\\_deb@yahoo.com](mailto:soumitra_deb@yahoo.com), [soumitra.debn@gmail.com](mailto:soumitra.debn@gmail.com)  
=====

---

 **Distinguished Talk Flyer\_Prof. Enrico Prati\_15 March 2024.pdf**  
114K





## Distinguished Talk on Photonics-aided Emerging Quantum Communication Applications

The Centre for Next Generation Communication and Networking (CNGCN), LNMIIT Jaipur, in association with IEEE Vehicular Technology Society, cordially invites you to attend a distinguished talk (virtual) by **Prof. Enrico Prati**, Department of Physics, University of Milan, Italy.

### About the Speaker

Born in 1974, Prof. Prati received the Italian Laurea degree in theoretical physics from the University of Pisa, Pisa, Italy, in 1998, and the Ph.D. degree in physics from the University of Pisa and the Consiglio Nazionale delle Ricerche (CNR), Milan, Italy in 2002. He is a distinguished physicist currently serving as a faculty member in the Department of Physics at the University of Milan, Italy. He has been the research scientist in various reputed universities of Italy. He was also a Visiting Scholar in Waseda University, Shinjuku, Japan achieving JSPS fellowship. He has led around 12 projects of EU, including CQES, PHYSICOMP, QUASIX and many more. With a focus on experimental physics, particularly in the field of nanotechnology, Prof. Prati's research interests span a wide range of topics, including nanoelectronics, quantum computing, and solid-state physics. He has authored over 120 articles in international journals on quantum information theory, single electron and single atom transistor experiments, and metamaterials, and 5 international patents.



### Abstract of the Talk

The talk would present the development and integration of a fully integrated silicon photonic erbium-doped nanodiode operating at telecom wavelengths, with a focus on its potential applications in quantum communication. The nanodiode's design leverages the unique properties of erbium-doped silicon to achieve efficient photon detection and emission. By integrating the nanodiode into a silicon photonic platform, seamless compatibility with existing telecom infrastructure is achieved, enabling practical deployment in quantum communication networks. The talk discusses the fabrication process, device performance characteristics, and preliminary experimental results, highlighting the nanodiode's suitability for various quantum communication applications, including quantum key distribution and quantum repeater systems. Overall, this work represents a significant step towards realizing fully integrated silicon photonic devices for quantum communication, paving the way for future advancements in quantum information processing and secure communication protocols.

**Date:** March 15, 2024 (Friday)

**Time:** 03:00-04:00 PM IST

**Venue:** VC Room (LNMIIT)

**Joining Link:** <https://meet.google.com/prx-aogq-bov>

## List of Participants who Attended the Talk.

Name	Designation	Affiliation
1. Prof. Ranjan Gangopadhyay	Research Professor	LNMIIT, Jaipur
2. Dr. Soumitra Debnath	Associate Professor	LNMIIT, Jaipur
3. Dr. Anirudh Agarwal	Assistant Professor	LNMIIT, Jaipur
4. Dr. Harshwardhan Kumar	Assistant Professor	LNMIIT, Jaipur
5. Dr. Umesh Sharma	Assistant Professor	LNMIIT, Jaipur
6. Dr. Gurinder Singh	Assistant Professor	LNMIIT, Jaipur
7. Ms. Payal Mittal	PhD Scholar	LNMIIT, Jaipur
8. Ms. Sameeksha Chaudhary	PhD Scholar	LNMIIT, Jaipur
9. Ms. Sneha Dattatreya	PhD Scholar	LNMIIT, Jaipur
10. Ms. Isha Khirwar	PhD Scholar	LNMIIT, Jaipur
11. Mr. Manoj Sain	PhD Scholar	LNMIIT, Jaipur
12. Mr. Bhupendra Sharma	PhD Scholar	LNMIIT, Jaipur
13. Mr. Rahul Makkar	PhD Scholar	LNMIIT, Jaipur
14. Dr. Manish Singh	Assistant Professor	LNMIIT, Jaipur
15. Prof. Somnath Biswas	Professor	LNMIIT, Jaipur





*[Handwritten signature]*



Beermalpura at Mukandpura, Rajasthan, India  
WWPF+JP3, Sumel, Beermalpura at Mukandpura, Rajasthan 302027, India  
Lat 26.936534°  
Long 75.924195°  
15/03/24 03:07 PM GMT +05:30

GPS Map Camera



Zoom Meeting: Enrico Prati (Presenting)

### QUANTUM COMPUTING VS ARTIFICIAL INTELLIGENCE

- ARTIFICIAL INTELLIGENCE
  - GA/ QAI
  - QML
  - QNN
  - QRC
- QUANTUM COMPUTING
  - QML
  - QNN
  - QRC
- NEURAL ARCHITECTURE

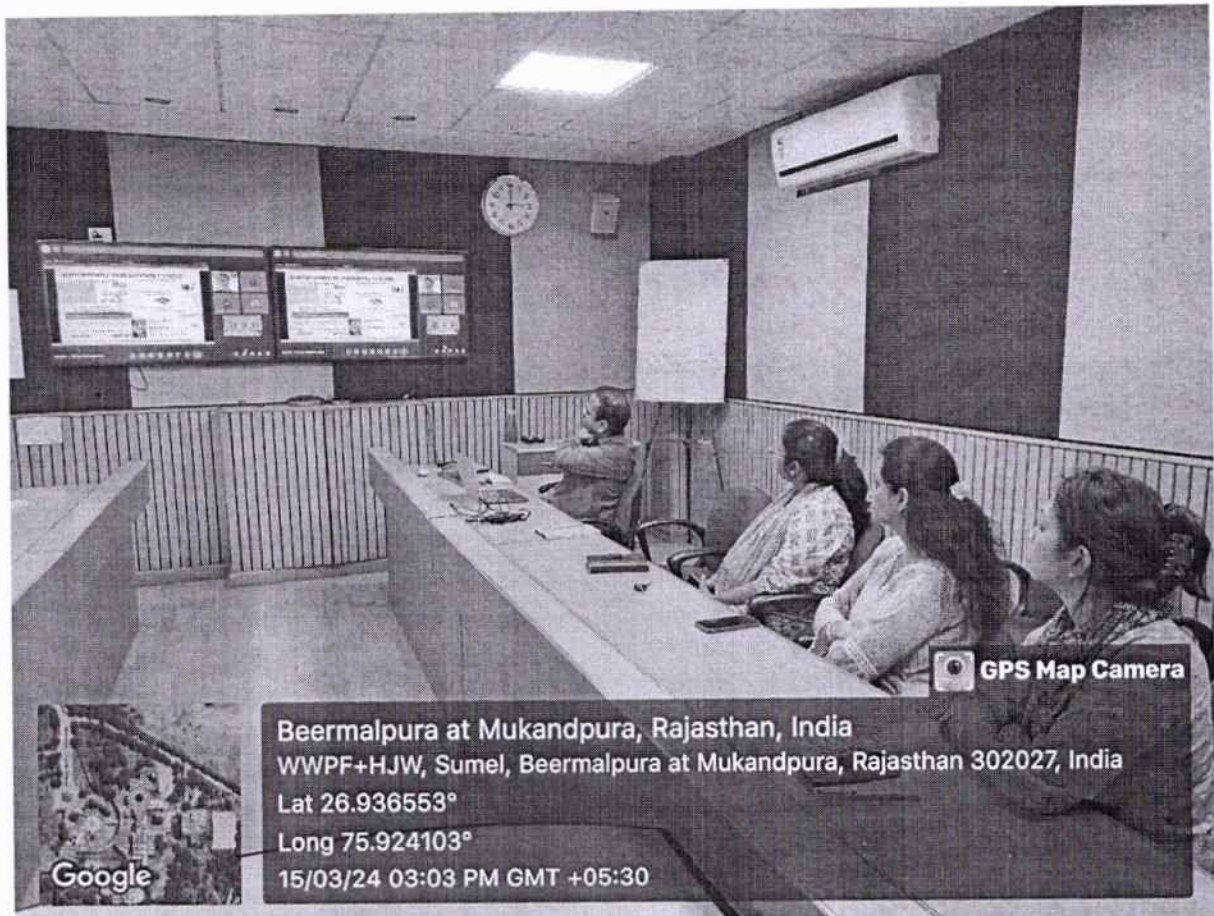
Full Stack: Green Phosphoric Erbium Oxide Nanodisks

3:04 PM | Talk by Prof Enrico Prati



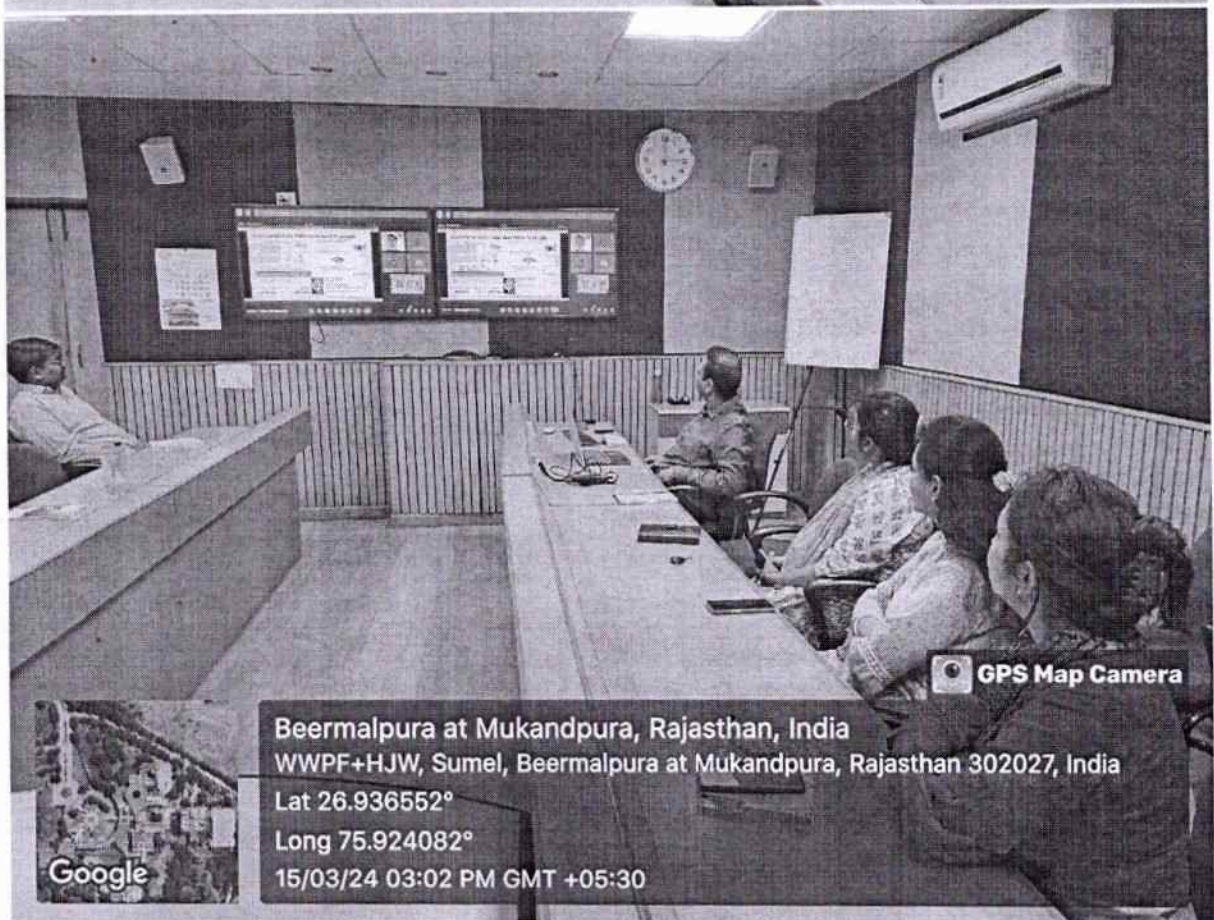
Beermalpura at Mukandpura, Rajasthan, India  
WWPF+JP3, Sumel, Beermalpura at Mukandpura, Rajasthan 302027, India  
Lat 26.936539°  
Long 75.924174°  
15/03/24 03:04 PM GMT +05:30

GPS Map Camera



Google

Beermalpura at Mukandpura, Rajasthan, India  
WWPF+HJW, Sumel, Beermalpura at Mukandpura, Rajasthan 302027, India  
Lat 26.936553°  
Long 75.924103°  
15/03/24 03:03 PM GMT +05:30

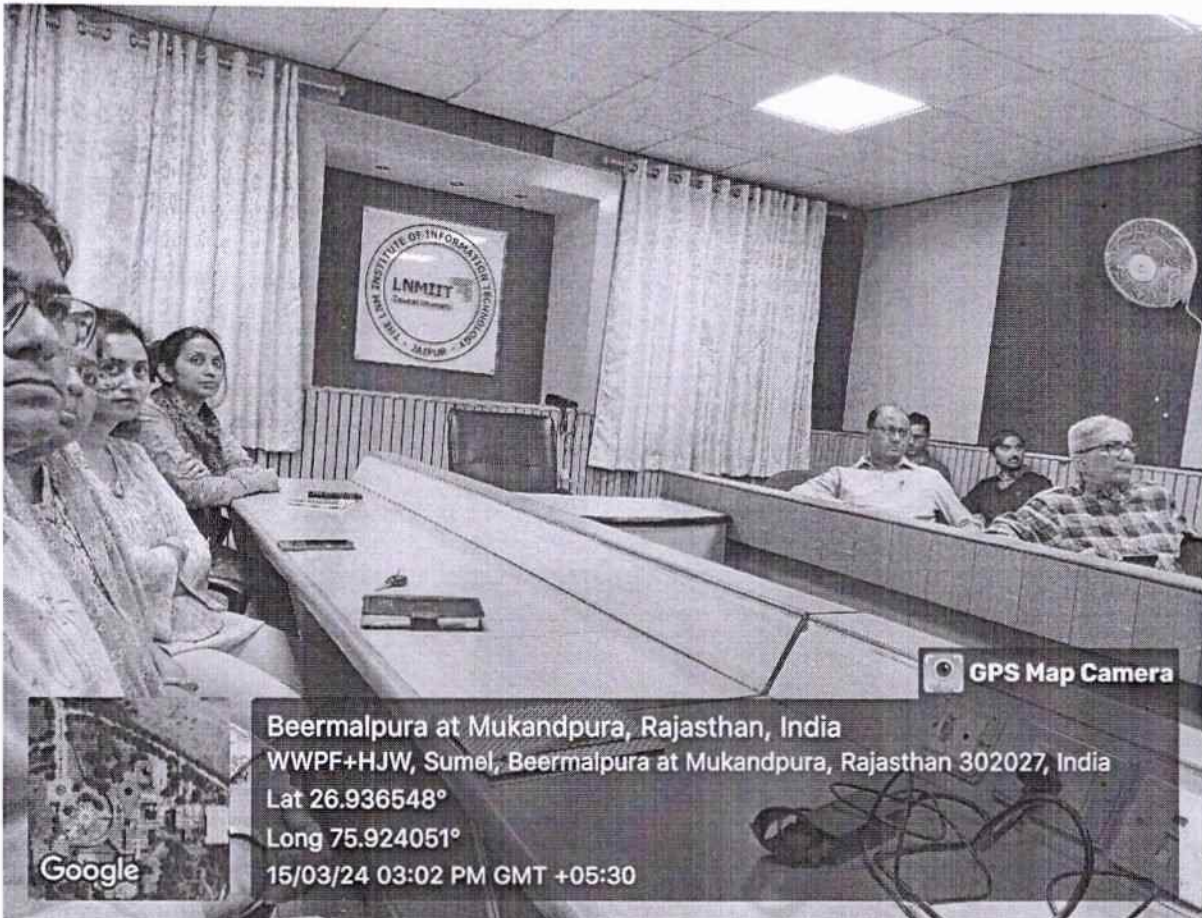


Google

Beermalpura at Mukandpura, Rajasthan, India  
WWPF+HJW, Sumel, Beermalpura at Mukandpura, Rajasthan 302027, India  
Lat 26.936552°  
Long 75.924082°  
15/03/24 03:02 PM GMT +05:30

Handwritten blue scribbles.

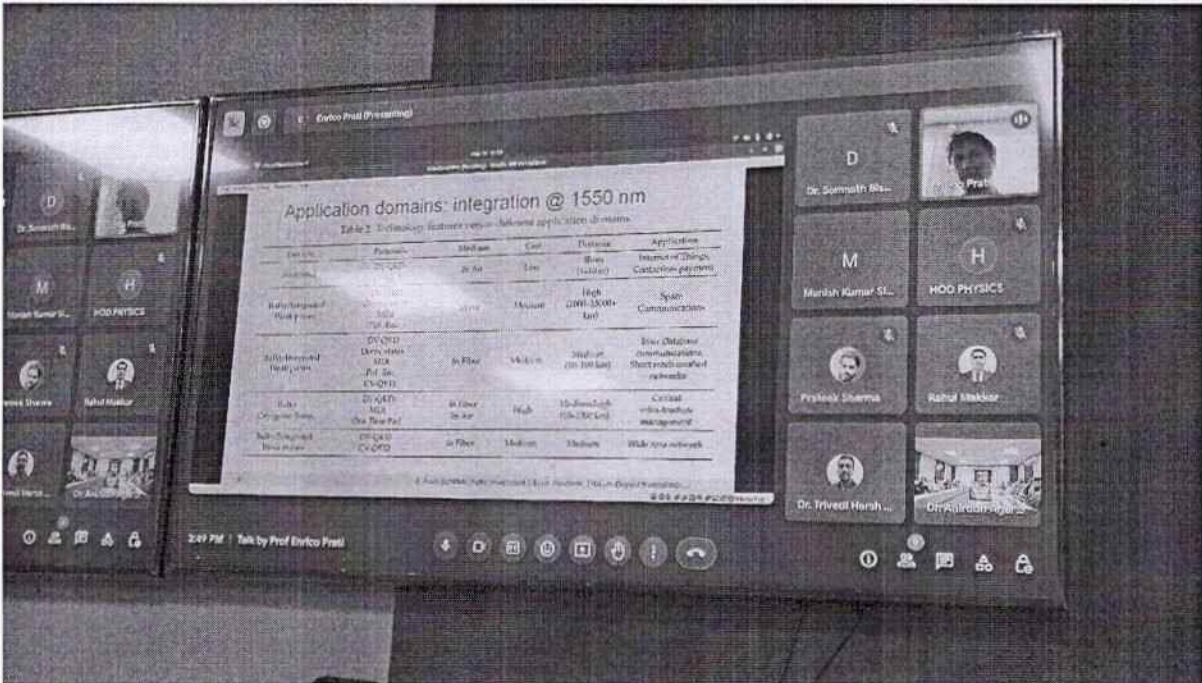




Beermalpura at Mukandpura, Rajasthan, India  
 WWPF+HJW, Sumel, Beermalpura at Mukandpura, Rajasthan 302027, India  
 Lat 26.936548°  
 Long 75.924051°  
 15/03/24 03:02 PM GMT +05:30



Google



Application domains: integration @ 1550 nm

Table 2. Technology clusters versus telecom application domains.

Enabling Technology	Platform	Medium	Cell	Distance (km)	Application	
4G/LTE	4G/LTE	in Air	Line	1000	Internet of Things, Costation systems	
Radio frequency of 60GHz	5G	in Air	Multi-cell	High (200-3500+ km)	Space Communications	
3D/4D/5D/6D/7D/8D/9D/10D/11D/12D/13D/14D/15D/16D/17D/18D/19D/20D/21D/22D/23D/24D/25D/26D/27D/28D/29D/30D/31D/32D/33D/34D/35D/36D/37D/38D/39D/40D/41D/42D/43D/44D/45D/46D/47D/48D/49D/50D/51D/52D/53D/54D/55D/56D/57D/58D/59D/60D/61D/62D/63D/64D/65D/66D/67D/68D/69D/70D/71D/72D/73D/74D/75D/76D/77D/78D/79D/80D/81D/82D/83D/84D/85D/86D/87D/88D/89D/90D/91D/92D/93D/94D/95D/96D/97D/98D/99D/100D	5G	in Fiber	Multi-cell	1000-10000 (in 100 km)	Edge Computing, Distributed computing, Short reach wireless networks	
6G	6G	in Fiber	in Air	High	10-10000+ (in 100 km)	Central and distributed management
Sub-THz/THz/1THz/2THz/3THz/4THz/5THz/6THz/7THz/8THz/9THz/10THz/11THz/12THz/13THz/14THz/15THz/16THz/17THz/18THz/19THz/20THz/21THz/22THz/23THz/24THz/25THz/26THz/27THz/28THz/29THz/30THz/31THz/32THz/33THz/34THz/35THz/36THz/37THz/38THz/39THz/40THz/41THz/42THz/43THz/44THz/45THz/46THz/47THz/48THz/49THz/50THz/51THz/52THz/53THz/54THz/55THz/56THz/57THz/58THz/59THz/60THz/61THz/62THz/63THz/64THz/65THz/66THz/67THz/68THz/69THz/70THz/71THz/72THz/73THz/74THz/75THz/76THz/77THz/78THz/79THz/80THz/81THz/82THz/83THz/84THz/85THz/86THz/87THz/88THz/89THz/90THz/91THz/92THz/93THz/94THz/95THz/96THz/97THz/98THz/99THz/100THz	6G	in Fiber	Multi-cell	10000+	WLAN networks	



2:47 PM | Talk by Prof Enrico Prati