

SRM

By using the above expressions in Eqn.(6), we get

$$c\nu(1-Y^2)\frac{dU(Y)}{dY} + c^2(1-Y^2)\left(-2Y\frac{dU(Y)}{dY} + (1-Y^2)\frac{d^2U(Y)}{dY^2}\right) - K + \alpha k[U(Y)]^2 = 0 \dots (8)$$

Balancing the order of the non-linear term  $[U(Y)]^2$  with the order of the  $Y^2$  (or  $Y^0$ ) component of the second term gives:

$$2M - 3 + M - 1 \text{ such that } M = 2. \dots (9)$$

Hence

$$U(Y) = a_0 + a_1 Y + a_2 Y^2 \dots (10)$$

Participants

Share invite

Mute all

- Presented (22)
- DS: Dr. Prema Sumathi
- A: AJOTHIMANI (Unverified)
- AS: Abirami Selva (Unverified)
- AD: AIRTHA D (Unverified)
- AS: Anandha Selvam (Unverified)
- AS: Anitha SRM (Unverified)
- AS: Anitha G (Unverified)
- A: aha (Unverified)

4833

124

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U:J.Senthilnathan (Unverified)

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14:31

SRM

By using the above expressions in Eqn.(6), we get

$$cY(1-Y^2)\frac{dU(Y)}{dY} + c^2(1-Y^2)\left(-2Y\frac{dU(Y)}{dY} + (1-Y^2)\frac{d^2U(Y)}{dY^2}\right) - K + aU(Y)^2 = 0 \dots (8)$$

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Participants

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Prasanth (ZZ)

DS - Dr. Prema Sumathi

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AD - AIRTHA D (Unverified)

AS - Anandha Selvam (Unverified)

AS - Anitha SRM (Unverified)

AS - Anitha G (Unverified)

A - aitha (Unverified)

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14:31

Microsoft Teams meeting interface showing a slide on Differential Equations and meeting controls.

**Differential Equation:**

- Equations which are composed of an unknown function and its derivatives are called differential equations.
- $\frac{dy}{dx} = f(x, y)$
- It becomes an initial value problem when the solution is to be found using the initial condition.
- $\frac{dy}{dx} = f(x, y), y(x_0) = y_0$

Differential equations play a fundamental role in science because many physical phenomena are best formulated mathematically in terms of their rate of change.

Meeting info: FDP Program - Department of Mathematics Associated with Aryabhata Math Club Organizes

Microsoft Teams meeting

Join on your computer, mobile app or room device

Meeting ID: 411 851 095 17  
Passcode: 987MHp

2447

Meeting now | Microsoft Teams

21:26

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# Mathematical Modeling for Digital Authentication

R S SANKARA SUBRAMANIAN  
Professor, Department of Mathematics  
PSG Institute of Technology and Applied Research, Coimbatore – 641 062

21:26

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Google Chrome 14:05

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33:31

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Show conversation

## Content

- Introduction
- Overview of Mathematical Modeling
- Need for Mathematical Modeling in Authentication
- Cryptographic Models
- Case Studies
- Challenges and Limitations
- Future Trends
- Conclusion
- Q&A
- References

33:31

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14:07

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29:30

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RK RAJASUNGA... J Jey (Unm...)

Start ScreenCamera

Welcome to India ATM

Google Chrome

See How a \$249 Amazon Investment Can Benefit You (Apoly Today) [Ad] CPX schools@esr.com

Close

Search PDF PDF Meeting now | M... Google Chrome 14:03

## SUFFICIENT CONDITIONS FOR OPTIMALITY

While the first derivative test identifies points that might be extrema, this test does not distinguish a point that is a minimum from one that is a maximum or one that is neither. When the objective function is twice differentiable, these cases can be distinguished by checking the second derivative or the matrix of second derivatives. In unconstrained problems, or the matrix of second derivatives of the objective function and the constraints called the bordered Hessian in constrained problems. The conditions that distinguish maxima, or minima, from other stationary points are called 'second-order conditions' 'Second derivative test'

Dr. V. VIJAYALAKSHMI

V KAM...

Samrat...

Dr. V. Vija...

Anitha



The screenshot shows a PDF viewer application with a toolbar at the top containing icons for File, Home, Comment, View, Form, Protect, Font, eSign, Share, and Help. The main content area displays a biological specimen, possibly a coral or a branching organism, against a dark background. The sidebar on the left contains various navigation and tool icons. The bottom of the viewer shows a status bar with the name 'R.Uthayakumar (Unverified)' and a zoom level of 100%.

The vertical sidebar on the right side of the meeting interface contains several elements: a video thumbnail of a participant, a 'Start ScreenCamera' button with a color calibration strip, a profile card for 'Dr. Anandh...' with a blue circle containing the letters 'DS' and a 'View all' link, and another video thumbnail of a participant at the bottom.

File Home Insert Layout References Send Tools View Help

Font: Arial 12pt Bold Italic Underline Text Color Background Color Paragraph Styles Links Attachments Images Audio

Slide 1

### Fractal Dimension:

Let  $(X, d)$  be a metric space. Let  $\mathbf{H}(X)$  be a collection of all non empty compact subsets of  $X$ . Let  $A \in \mathbf{H}(X)$ . For each  $\epsilon > 0$ . Let  $N(A, \epsilon)$  denote the smallest number of closed balls of radius  $\epsilon > 0$  needed to cover  $A$ . If

$$D = \lim_{\epsilon \rightarrow 0} \left\{ \frac{\ln(N(A, \epsilon))}{\ln(1/\epsilon)} \right\}$$

exists, then  $D$  is called the Fractal Dimension of  $A$  and we will say  $A$  has Fractal Dimension  $D$ .

R.Uthayakumar (Unverified)

Participant list: DS (Dr. Anandha Sel...), View all

File Home Insert Layout References Send Keys View Help

Share on  $\mathcal{H}(X)$

# Hausdorff Dimension

**Hausdorff Measure:**

Let  $F$  be a subset of  $\mathbb{R}^n$  and  $s$  is a non negative integer.  
For any  $\delta > 0$  we define

$$H^s_\delta(F) = \inf \left\{ \sum_{i=1}^{\infty} (\text{diam}(U_i))^s : \{U_i\} \text{ is a } \delta\text{-cover of } F \right\}$$

R.Uthayakumar (Unverified)



DS Dr.Anandh... View all

DS

WILLIAM SHAKESPEARE

Three sentences for getting **SUCCESS**:

- a) know more than other
- b) work more than other
- c) expect less than other

Participant thumbnails and name cards for Dr. Anandha Sel...

Stay in the know. Turn on desktop notifications.

Turn on

24:03

Chat People 36 Raise React View More Camera Mic Share Leave

**FRACTAL THEORY**  
and  
**Mathematical Biology**

**Dr. R. UTHAYAKUMAR**  
PROF. PROFESSOR (M.A.S.)  
DEPARTMENT OF MATHEMATICS  
THE GANDHIGRAM RURAL INSTITUTE  
(DEEMED TO BE UNIVERSITY)  
GANDHIGRAM, 624 302  
TAMILNADU, INDIA.

Turn camera off (Ctrl+Shift+O)



DB  
Dr. S. Sabe... View all



15:47 Chat People 33 Raise React View More Camera Mic Share Leave

**What is Fuzzy**

The approach of Fuzzy Logic imitates the way of decision making in humans that involves **all intermediate possibilities between digital values YES - 1 and NO.**

It works on the levels of possibilities of input to achieve the definite output

Participant list:

- Dr.M.Kameswar...
- Imsmat (Un...)
- j (Unverified)
- renuga v (...)
- Mrs. Laksh...
- View all
- DS

Meeting chat

Some people in this chat are outside your org. It's possible they have message-related policies that will apply to the chat. [Learn more](#)

2:10 PM

A very Good afternoon to all the participants. I heartly welcomes to all

Mrs.C.YOGITHA (Unverified) 2:12 PM

Good afternoon Mrs.C.YOGITHA Assistant professor, Department of Mathematics, NPR college of Engineering & Technology, Natham, Dindigul.

Type a message

14:46

Meeting controls: Chat, People (33), Raise, React, View, More, Camera, Mic, Share, Leave

**SUCCESS**

**HARD WORK** (May be Slow) ↔ **SMART WORK** (Quick)

↓

**HARD SMART WORK** (SPEED)      **SMART HARD WORK** (HIGH SPEED)

Participant list:

- Dr.M.Kameswar...
- Imsmat (Un...)
- j (Unverified)
- renuga v (...)
- Mrs. Laksh...
- View all
- DS

Meeting chat

2:10 PM

A very Good afternoon to all the participants. I heartly welcomes to all

2:12 PM

Good afternoon Mrs.C.YOGITHA Assistant professor, Department of Mathematics, NPR college of Engineering & Technology, Natham, Dindigul.

Type a message



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01:05:58

# DLP

(Discrete Log Problem) Let  $G$  be a finite group, e.g.  $G = (\mathbb{Z}/p\mathbb{Z})^*$ .

Given  $b \in G$  and a power  $a$  of  $b$ ,

find a positive integer  $n$  such that  $b^n = a$ .

suppose  $a = 18$ ,  $b = 5$ , and  $p = 23$ .

$b^1 = 5, b^2 = 2, b^3 = 10, \dots, b^{12} = 18$ .

120

Chat, People, File, Meet, View, Video, Camera, Mic, Share, Leave

6:3 Sembangunmanan (Zoom...)

J, View all

DS


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Meeting now | Microsoft Teams

123

Chat People Rate Best View View Camera Mic Share Leave

### Digital Signature



01:14:22

J Jay Sharma View all

DS

Meeting now | Microsoft Teams

Search PDF PDF Meeting now | Microsoft Teams Google Chrome 14:48

The image shows a Microsoft Teams meeting interface. The main content area displays a slide titled "Digital Signature" with an illustration of a laptop, a document, and a green checkmark. The right-hand sidebar shows a video feed of a participant named Jay Sharma, a color calibration chart, and a name card for "DS". The top of the interface includes meeting controls like chat, people, rate, best, view, camera, mic, share, and a red "Leave" button. The bottom of the image shows the Windows taskbar with various application icons and the system clock at 14:48.

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### Digital Signature Model

The diagram illustrates the Digital Signature Model in two parts: creation and verification.

**Creation:** Original Data is processed by a Hashing Algorithm to create a One-way Hash. This hash is then combined with a Private Key in an Encryption process to generate a Digital Signature. The Original Data and the Digital Signature are then transmitted over a Network.

**Verification:** The received data (Original Data and Digital Signature) is processed by a Hashing Algorithm to create a One-way Hash. Simultaneously, the Digital Signature is decrypted using the sender's Public Key to reveal the original One-way Hash. The two One-way Hashes are compared, and if they are identical, the data integrity is validated.

Meeting controls: Chat, 122, Mute, Video, Screen, Mic, Share, Leave

Participant: J (jg...)

Document: DS

Windows taskbar: Search, File Explorer, Edge, Teams, Meeting now | Microsoft Teams, Google Chrome, 14:44



VoLTE 4G 74% 14:31

FDP Program - Departme... 14:32 82 attendees

Notifications (1)

Optimization Model Formulation

Max/min  $Z = c_1x_1 + c_2x_2 + \dots + c_nx_n$

subject to:

$$\begin{cases} a_{11}x_1 + a_{12}x_2 + \dots + a_{1n}x_n \leq, =, \geq b_1 \\ a_{21}x_1 + a_{22}x_2 + \dots + a_{2n}x_n \leq, =, \geq b_2 \\ \vdots \\ a_{m1}x_1 + a_{m2}x_2 + \dots + a_{mn}x_n \leq, =, \geq b_m \end{cases}$$

$x_i$  = decision variables  
 $b_i$  = constraint levels  
 $c_i$  = objective function coefficients  
 $a_{ij}$  = constraint coefficients

Footer      Side Number

Click to add notes

T.DHIVYA

Mura... Dr. C. C... S.MAN... alarmel... PS

Video off, Microphone off, Headset, More options, End call