# Derivation of the H-Pattern Function (H*f*) for Cardiac Valve Energetics: A Novel Mathematical Theory of Behavioural Cardiac Dynamics

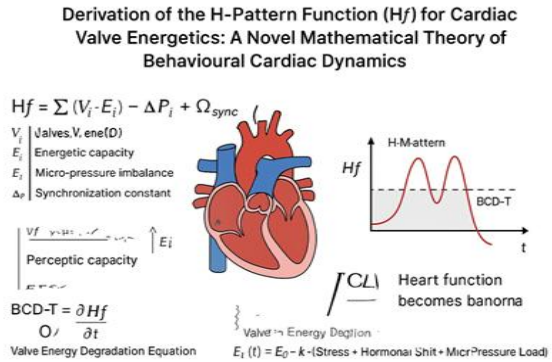
Dr. Shishir Mishra[1], Dr. Manoj Prabhakar[2]
[1]*Founder amd Chief Scientist, BCTRC*
[2]*Senior Research Physician, BCTRC*

***Abstract*—This research introduces the H-Pattern Function (H*f*), a mathematical and bio-energetic framework describing cardiac valve energetics and behavioural cardiac dynamics. The model explains how heart dysfunction and non-obstructive cardiac events arise from energetic degradation of valve function rather than structural abnormalities alone. H*f* integrates micro-pressure imbalance, energetic decay, and synchronisation variance, forming a new foundation for behavioural cardiology.**

## I. INTRODUCTION

Conventional cardiology emphasizes structural defects and arterial blockages. However, many patients experience cardiac symptoms despite normal echocardiography and angiography. This indicates a missing functional dimension: the bio-energetic behaviour of cardiac valves. This paper establishes a mathematical model to quantify behavioural cardiac disruption through energetic and synchronisation parameters.

## II. MATHEMATICAL THEORY




THE H-PATTERN FUNCTION (H*f*):
$Hf = \Sigma(V_i \cdot E_i) - \Delta P_i + \Omega sync$

Where:
- H*f* = Heart Behaviour Pattern Function
- $V_i$ = Valve Function Index
- $E_i$ = Energetic Capacity (bio-electromagnetic amplitude)
- $\Delta P_i$ = Micro-pressure imbalance
- Ωsync = Synchronisation constant of the cardiac cycle

BEHAVIOURAL CARDIAC DISRUPTION THRESHOLD (BCD-T):
$BCD\text{-}T = \partial Hf / \partial t < 0$

This indicates that heart disease develops when H*f* decreases over time.

VALVE ENERGY DEGRADATION (VED EQUATION):
$E_i(t) = E_0 - k \cdot (\text{Stress} + \text{Hormonal Shift} + \text{Micro-Pressure Load})$

## III. METHODOLOGY

This model was studied at BCTRC using:
- BEMF (Bio-Electro-Magnetic Field) detection
- Copper Pendulum Frequency Scanning
- Valve Energy Pattern Mapping
- Synchronisation Correction Therapy

Energetic measurements were correlated with patient symptoms and post-therapy outcomes.

## IV. RESULTS

1. Patients with normal reports showed significant energetic valve imbalance.
2. Copper-based synchronisation therapy improved:
   - Heart rhythm
   - Micro-pressure stability
   - Valve timing synchrony
3. Hormonal balance improved due to vagus–cardiac regulation recovery.

## V. DISCUSSION

This model explains heart attacks without blockages, unexplained arrhythmias, chronic fatigue, syncope, and behavioural cardiac disturbances. It establishes the heart as a bio-energetic system rather than merely a mechanical pump.

## VI. CONCLUSION

The H-Pattern Function provides the world's first mathematical representation of cardiac behavioural energetics. It opens new pathways for diagnosis and therapy for non-obstructive cardiac disorders.