



**GRADUATE PROGRAM IN MEDIA STUDIES
PRATT INSTITUTE**

**Manhattan Campus
October 7-24 2015**

**GROTHENDIECK
AND A THEORY OF
CONTEMPORARY TRANSGRESSION**

Fernando Zalamea
Departamento de Matemáticas
Universidad Nacional de Colombia

ORGANIZATION OF THE LECTURES

I. Wed 7	GROTHENDIECK's main mathematical ideas. Sheaves (1), Schemes (2), Topos (3), Motives (4)
II. Thu 8	Philosophical outbursts of Grothendieck's work. A theoretical plea for our Transmodern World
III. Wed 14	<i>Sheaves (1) and a local/global gluing theory.</i> Novalis / Peirce ----- Atlas of Transformation / COLLAPSE
IV. Thu 15	<i>Schemes (2) and a non-separation theory.</i> Novalis / Florensky ----- Atlas of Transformation / NETWORKOLOGIES
V. Wed 21	<i>Topos (3) and a gestural space theory.</i> Novalis / Valéry ----- Atlas of Transformation / TOPOS OF MUSIC
VI. Thu 22	<i>Motives (4) and a diagrammatic synthesis theory.</i> Novalis / Warburg ----- Atlas of Transformation / GLASS BEAD
VII. Sat 24	Final Round Table. CONTEMPORARY TRANSGRESSION (Mackay, Negarestani, Vitale, Fraser, Knebel, Mazzola, Giraud, Zalamea)

I. Wednesday October 7

GROTHENDIECK'S MAIN MATHEMATICAL IDEAS

(0) Place

- 0.1. Life (1, 2)**
- 0.2. Work**
- 0.3. Mathematical influence: the great contemporary programs**
- 0.4. Mathematical influence: the Fields panorama**
- 0.5. Methodological strategies**

(1) Sheaves

- 1.0. The situation: generalization of transits**
- 1.1. The *Tôhoku* (1955)**
- 1.2. The *Riemann-Roch Report* (1957)**
- 1.3. Types and archetypes (1)**

(2) Schemes

- 2.0. The situation: generalization of number**
- 2.1. The *Edinburgh ICM Lecture* (1958)**
- 2.2. The *Éléments de Géométrie Algébrique (EGA)* (1960-67)**
- 2.3. Types and archetypes (2)**

(3) Topos

- 3.0. The situation: generalization of space**
- 3.1. The *Ph. D. Thesis* (1953) and the *Résumé* (1953)**
- 3.2. The *Séminaire de Géométrie Algébrique (SGA)* (1960-69)**
- 3.3. Types and archetypes (3)**

(4) Motives

- 4.0. The situation: generalization of form**
- 4.1. The *Motives* (c. 1967) and the *Standard Conjectures* (1969)**
- 4.2. The music of *Motives* (1985)**
- 4.3. Types and archetypes (4)**

(5) Map

II. Thursday October 8

PHILOSOPHICAL OUTBURSTS OF GROTHENDIECK'S WORK. A THEORETICAL PLEA FOR OUR TRANSMODERN WORLD

- (1) Towards a synthetic philosophy for the XXIst century**
- (2) New forces: relative universals, non-separated “razón / co-razón” (1, 2)**
- (3) New structures: relative universal, non-separated, number, space, and form (1, 2, 3)**
- (4) A conceptual diagram of sheaves**
- (5) Grothendieck transform**
- (6) Transits theory: mathematical and cultural (1, 2)**
- (7) Transitory ontology and sheafification epistemology**
- (8) Transiting our Transmodern world (1, 2)**

III. Wednesday October 14

SHEAVES AND A LOCAL/GLOBAL GLUING THEORY. NOVALIS / PEIRCE ----- *AoT* / *COLLAPSE*

- (1) Novalis - A conceptual, differential and integral calculus (1, 2)
- (2) Peirce
 - 2.1. The three cenopythagorean categories
 - 2.2. The pragmatic(ist) maxim
 - 2.3. Continuity (synechism) and gluing (abduction)
- (3) THE SHEAVES PARADIGM
 - 3.1. Structure - Encoding transits: mult/one, loc/glo, dif/int, discr/cont
 - 3.2. Injection - Smoothing the residues
 - 3.3. Example - Sheaves over the double negation topology
 - 3.4. Projection - Independence and opening
- (4) *Atlas of Transformation* - A conceptual, differential and integral chrono/topo/graphy (1, 2)
- (5) *Collapse*
 - 5.1. Multidimensionality
 - 5.2. Decay (local implosion) and speculation (global explosion)
 - 5.3. Deployments - Creativity at large
- (6) Synthesis (III)

IV. Thursday October 15

SCHEMES AND A NON-SEPARATION THEORY. NOVALIS / FLORENSKY ----- *AoT* / NETWORKOLOGIES

- (1) Novalis - Continuity and contradiction (1, 2)
- (2) Florensky
 - 2.1. The antinomial foundations of knowledge
 - 2.2. Continuity and discontinuity
 - 2.3. Inversions in imaginary space
- (3) THE SCHEMES PARADIGM
 - 3.1. Structure - Unifying the continuous and the discrete
 - 3.2. Injection - Sheafifying the residues
 - 3.3. Example - Germ of the doubled point
 - 3.4. Projection - A wider spectrum of possibilities
- (4) *Atlas of Transformation* - The forces of transfiguration (1, 2)
- (5) *Networkologies*
 - 5.1. Network dynamics - Tipology and topology
 - 5.2. Networkological geometries - Tetrads and sync
 - 5.3. (Un) limits and network paradoxes - Creativity at large
- (6) Synthesis (IV)

V. Wednesday October 21

**TOPOS AND A GESTURAL SPACE THEORY.
NOVALIS / VALÉRY ----- AoT/ TOPOS OF MUSIC**

- (1) Novalis - Splitting embodiments of “poesy” (1, 2)**
- (2) Valéry**
 - 2.1. The thresholds of life**
 - 2.2. Analysis situs-motus**
 - 2.3. Surfaces and branchings**
- (3) THE TOPOS PARADIGM**
 - 3.1. Structure - Classifying and unraveling variable sets**
 - 3.2. Injection - Covering the residues**
 - 3.3. Example - Topos of monoid actions**
 - 3.4. Projection - Transits along new forms of space**
- (4) *Atlas of Transformation* - Transcrossings Me/You (1, 2)**
- (5) *The Topos of Music***
 - 5.1. Geometric musical theory - Local and global**
 - 5.2. A revelation - Gesture Theory**
 - 5.3. A synthesis for musical processes - Creativity at large**
- (6) Synthesis (V)**

VI. Thursday October 22

**MOTIVES AND A DIAGRAMMATIC SYNTHESIS THEORY.
NOVALIS / WARBURG ----- *AoT* / *GLASS BEAD***

- (1) Novalis - Imagination and harmonious geometrization (1, 2)**
- (2) Warburg**
 - 2.1. Stratigraphy**
 - 2.2. Polarities and nocturnal bottoms**
 - 2.3. Interstitial images**
- (3) THE MOTIVES PARADIGM**
 - 3.1. Structure - Searching for universal forms**
 - 3.2. Injection - (Arche)typing the residues**
 - 3.3. Example - SHEAVES on TOPOS of SCHEMES (...completing the circle...)**
 - 3.4. Projection - Transits along new diagrams of/for form**
- (4) *Atlas of Transformation* - Diagrammatic thinking (1, 2)**
- (5) *Glass Bead***
 - 5.1. The place of art in the modern space of reason**
 - 5.2. De-forming and re-inventing the *Castalia* site**
 - 5.3. Navigating alternative logics - Creativity at large**
- (6) Synthesis (VI)**
- (7) TOWARDS RIEMANN SURFACES / GROTHENDIECK HYPERSURFACES FOR CONTEMPORARY TRANSGRESSIONS**