Chapter 15: The Theory Formerly Known as String
Membranes or “Branes”

- 0-brane
- 1-brane
- 2-brane
Andy Strominger

p-branes
Wrapped Branes
Wrapped Branes
Joe Polchinski

D-branes
Strings End on D-Branes
Johann Peter Gustav Lejeune Dirichlet

"le jeune de Richelet" = "the young chap from Richelet"

married Felix Mendelssohn's sister

the ends are stuck on the brane
Seiberg
Seiberg Duality

two different gauge theories are equivalent at low energies

strong coupling ↔ weak coupling

composite ↔ elementary
Sen Duality

$M_{\text{particle}}$

$M_{\text{string}}$

$M_{\text{string}}$

$M_{\text{particle}}$
The Theory Formerly Known As String

11D Supergravity

Type IIA

Type IIB

Type I

Heterotic

E8x E8

Heterotic

SO(32)
M Theory: 11 Dimensions

11D Supergravity

Type I
Type IIA
Type IIB

Heterotic
E8xE8
Heterotic
SO(32)

Type I
11D Supergravity

Duff and Townsend