Title: Discussion 4

Date: Apr 24, 2015 12:00 PM

URL: http://pirsa.org/15040185

Abstract:

$$\bar{J} = (g^{-1}\bar{\partial} g) \qquad J^a \qquad a = 0 \ldots 9$$

$$J = (g^{-1}\partial g) \qquad J^\alpha, J^{\hat\alpha} \qquad \alpha, \hat\alpha = 1 \ldots 16$$

$$J^{mn} \qquad mn \in SO(4,1)\times SO(5)$$

$$g \in PSU(2,2|4)/SO(4,1)\times SO(5) \qquad (\gamma^{01234})_{\alpha\hat\beta} = \delta_{\alpha\hat\beta}$$

$$\int d^2z \Big( J^a \bar{J}^a + (J^\alpha \bar{J}^{\hat\alpha} - J^{\hat\alpha} \bar{J}^\alpha)\delta_{\alpha\hat\alpha}$$

$$+ \tfrac{1}{2}(J^\alpha \bar{J}^{\hat\alpha} + J^{\hat\alpha} \bar{J}^{\hat\alpha})\delta_{\alpha\hat\alpha} \Big) \qquad \int d^2z (\partial\theta^\alpha \bar{\partial}\theta^{\hat\alpha} - \partial\theta^{\hat\alpha} \bar{\partial}\theta^\alpha)$$

$$+ w\bar{\nabla}\lambda + \hat{w}\nabla\hat{\lambda} + R(w\lambda)(\hat{w}\hat{\lambda})$$

$$w\bar{\nabla}\lambda = w\bar{\partial}\lambda + (w\gamma^{mn}\lambda)\bar{J}_{mn}$$

$$\bar{J} = (g^{-1}\bar{\partial} g) \qquad J^a \qquad a=0\ldots 9$$

$$J = (g^{-1}\partial g) \quad \to \quad J^\alpha, J^{\hat\alpha} \qquad \alpha, \hat\alpha = 1\ldots 16$$

$$J^{mn} \qquad mn \in SO(4,1)\times SO(5)$$

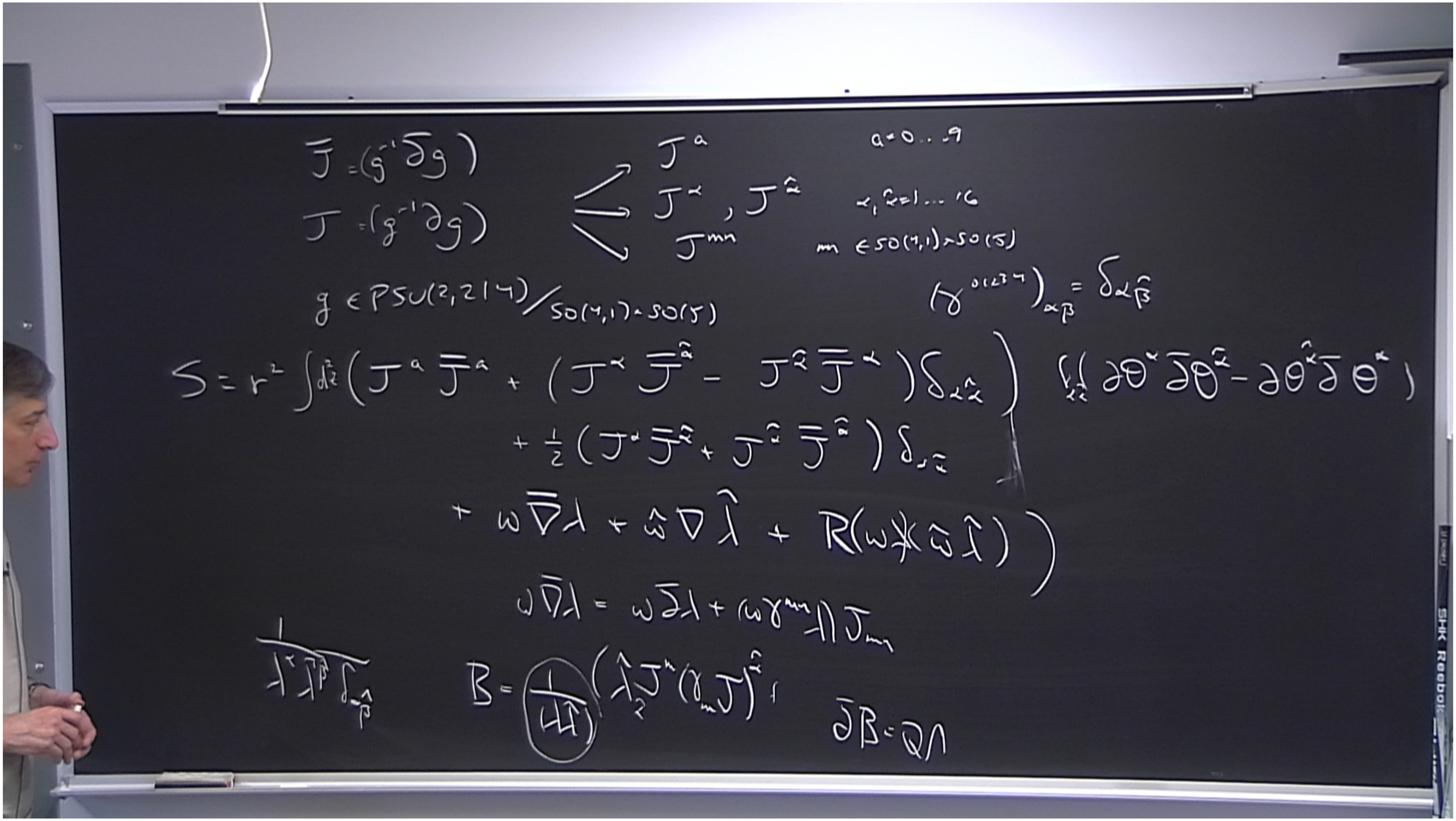
$$g \in PSU(2,2|4)/SO(4,1)\times SO(5) \qquad (\gamma^{01234})_{\alpha\beta} = \delta_{\alpha\hat\beta}$$

$$r^2 \int d^2z \Big( J^a \bar{J}^a + (J^\alpha \bar{J}^{\hat\alpha} - J^{\hat\alpha} \bar{J}^\alpha)\delta_{\alpha\hat\alpha} \Big) \quad \int d^2z\, (\partial\theta^\alpha \bar\partial\theta^{\hat\alpha} - \partial\theta^{\hat\alpha}\bar\partial\theta^\alpha)$$

$$+ \tfrac{1}{2}(J^\alpha \bar{J}^{\hat\alpha} + J^{\hat\alpha}\bar{J}^{\hat\alpha})\delta_{\alpha\hat\alpha}$$

$$+ w\bar\nabla\lambda + \hat{w}\nabla\hat\lambda + R(w\lambda\hat{w}\hat\lambda)\Big)$$

$$w\bar\nabla\lambda = w\bar\partial\lambda + (w\gamma^{mn}\lambda)\bar{J}_{mn}$$


$\bar{J} = (g^{-1}\bar{\partial} g)$
$J = (g^{-1}\partial g)$
$J^a$
$J^\alpha, J^{\hat\alpha}$
$J^{mn}$
$a = 0 \ldots 9$
$\alpha, \hat\alpha = 1 \ldots 16$
$mn \in SO(4,1) \times SO(5)$
$g \in PSU(2,2|4) / SO(4,1) \times SO(5)$
$(\gamma^{01234})_{\alpha\beta} = \delta_{\alpha\hat\beta}$
$S = r^2 \int d^2z \Big( J^a \bar{J}^a + (J^\alpha \bar{J}^{\hat\alpha} - J^{\hat\alpha} \bar{J}^\alpha)\delta_{\alpha\hat\alpha}$
$\delta_{\alpha\hat\alpha}(\partial\theta^\alpha \bar\partial\theta^{\hat\alpha} - \partial\theta^{\hat\alpha}\bar\partial\theta^\alpha)$
$+ \frac{1}{2}(J^\alpha \bar{J}^{\hat\alpha} + J^{\hat\alpha}\bar{J}^{\alpha})\delta_{\alpha\hat\alpha}$
$+ w\bar\nabla\lambda + \hat{w}\nabla\hat\lambda + R(w\lambda)(\hat{w}\hat\lambda) \Big)$
$w\bar\nabla\lambda = w\bar\partial\lambda + (w\gamma^{mn}\lambda)\bar{J}_{mn}$
$\frac{1}{\lambda^\alpha \hat\lambda^{\hat\beta} \delta_{\alpha\hat\beta}}$
$B = \frac{1}{(\lambda\hat\lambda)}(\hat\lambda \frac{\lambda}{2} J^a (\gamma_a J)^{\hat\alpha} +$
$\bar\partial B = Q\Lambda$

$$S_{Trivial} = S_{Top} = S_{r^2=0} = S_{G/G}$$

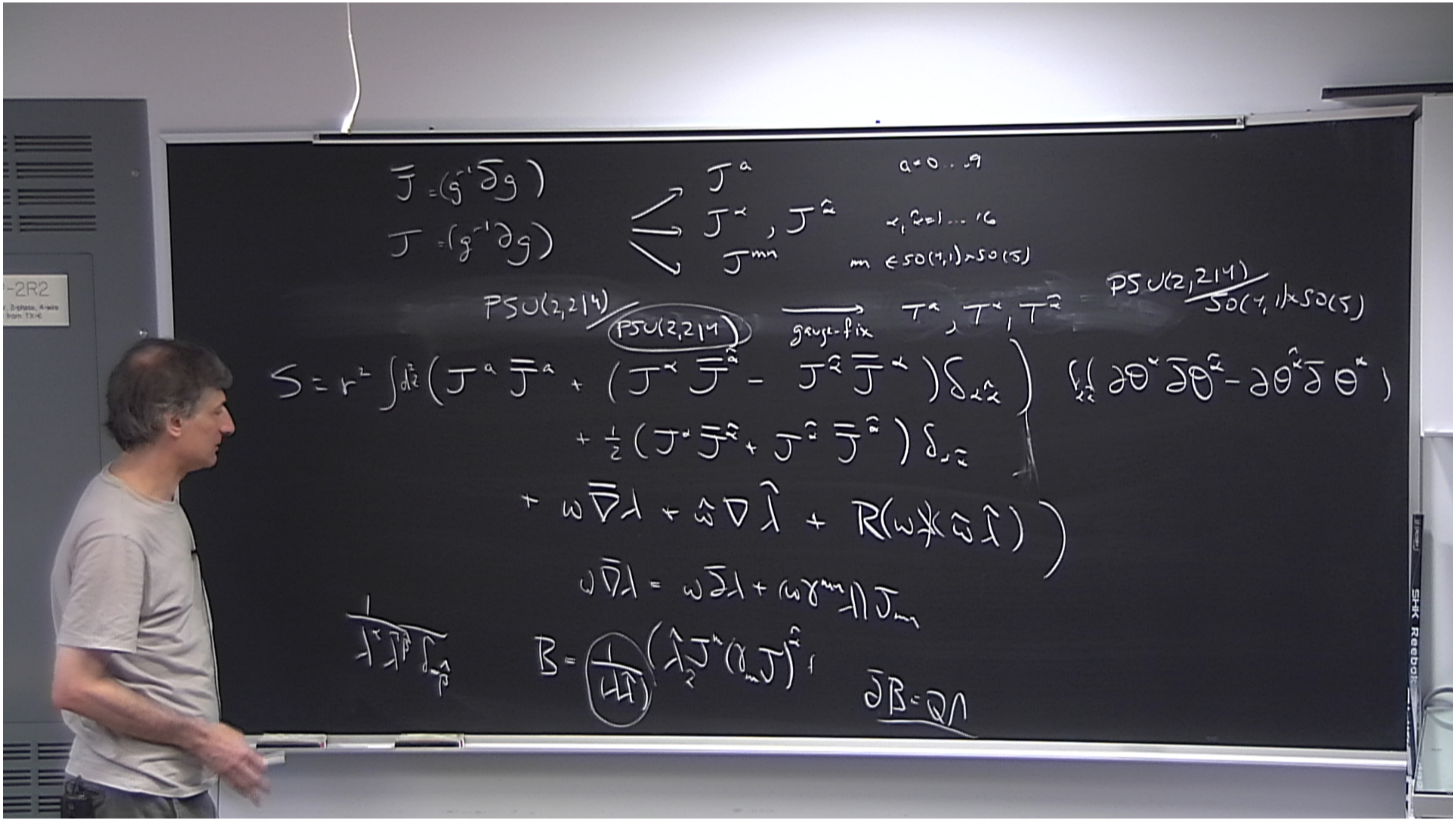
$\eta_{ab}$

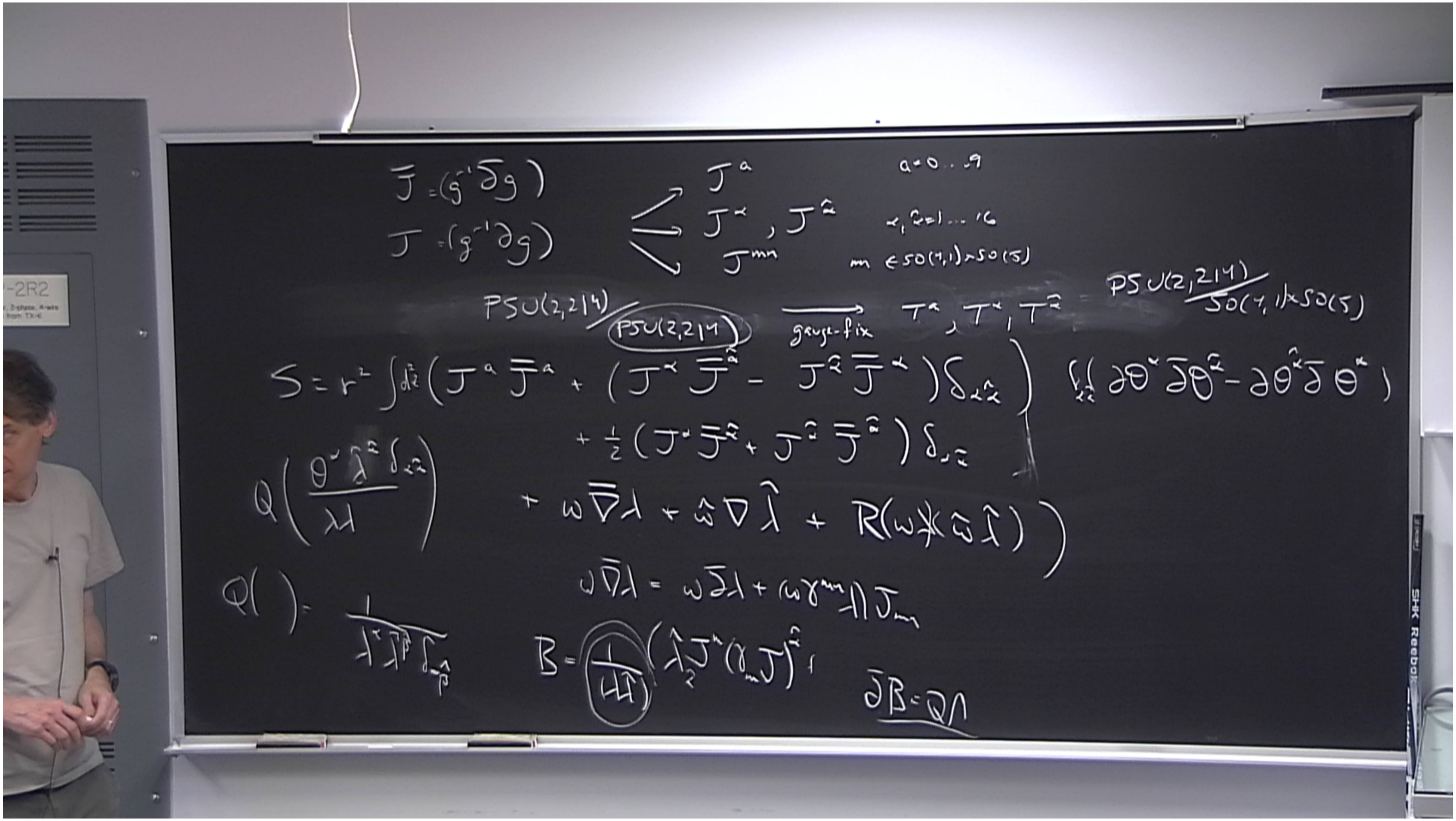
$$S_{Trivial} = r^2 \int d^2z \left( J^a \bar{J}^b \left( \frac{\lambda \gamma_{ab} \hat{\lambda}}{\lambda \hat{\lambda}} + \cancel{\frac{\hat{\lambda} \gamma_{ab} \lambda}{\lambda \hat{\lambda}}} \right) + J^\alpha \bar{J}^{\hat{\alpha}} \delta_{\alpha \hat{\alpha}} \right)$$

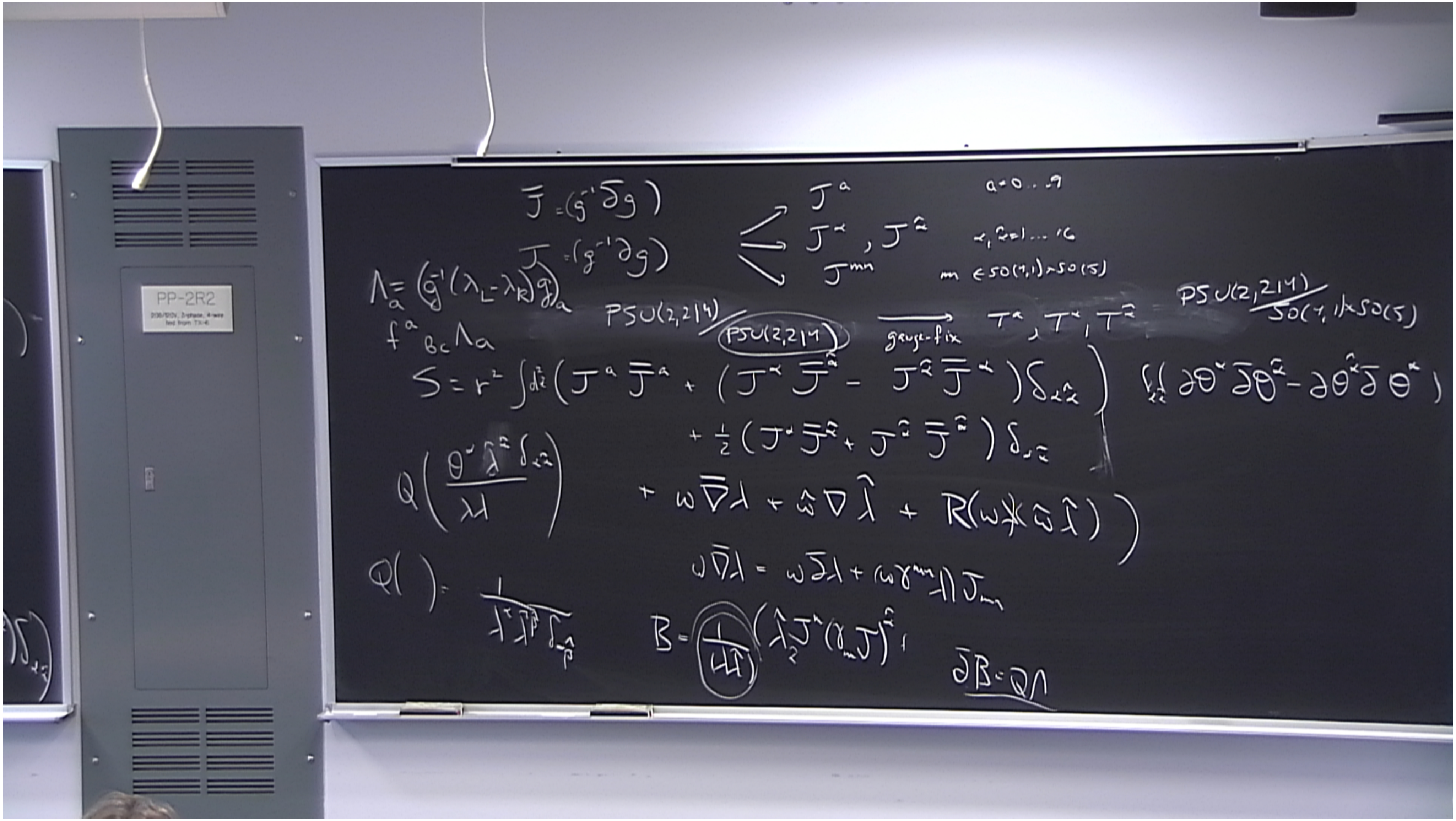
$$= \int d^2z \, (Q, \Lambda) \qquad + \dots$$

$$S = S_{Trivial} + S'$$

$$S' = r^2 \int d^2z \left( \frac{\lambda \gamma^{ab} \bar{\lambda}}{\lambda \bar{\lambda}} \right) \left( J^a \bar{J}^b - J^b \bar{J}^a \right) + \left( J^\alpha \bar{J}^{\hat{\alpha}} - J^{\hat{\alpha}} \bar{J}^\alpha \right) \delta_{\alpha \hat{\alpha}}$$


$\bar{J} = (g^{-1}\bar{\partial} g)$
$J = (g^{-1}\partial g)$
$J^a$ $a = 0 \ldots 9$
$J^\alpha, J^{\hat\alpha}$ $\alpha, \hat\alpha = 1 \ldots 16$
$J^{mn}$ $mn \in SO(4,1) \times SO(5)$
PSU(2,2|4) / PSU(2,2|4)
gauge-fix
$T^a, T^\alpha, T^{\hat\alpha}$
PSU(2,2|4) / SO(4,1)×SO(5)
$S = r^2 \int d^2z \big( J^a \bar{J}^a + (J^\alpha \bar{J}^{\hat\alpha} - J^{\hat\alpha} \bar{J}^\alpha)\delta_{\alpha\hat\alpha}$
$+ \frac{1}{2}(J^\alpha \bar{J}^{\hat\alpha} + J^{\hat\alpha} \bar{J}^{\hat\alpha})\delta_{\alpha\hat\alpha}$
$+ \omega \bar{\nabla}\lambda + \hat\omega \nabla \hat\lambda + R(\omega\lambda\hat\omega\hat\lambda) \big)$
$\int d^2z (\partial\theta^\alpha \bar\partial\theta^{\hat\alpha} - \partial\theta^{\hat\alpha}\bar\partial\theta^\alpha)$
$\omega\bar{\nabla}\lambda = \omega\bar\partial\lambda + (\omega\gamma^{mn}\lambda)\bar{J}_{mn}$
$B = \frac{1}{\lambda\hat\lambda}(\hat\lambda \gamma_2 J^m (\gamma_m J)^{\hat\alpha} + \ldots$
$\bar\partial B = Q\Lambda$


J = (g^{-1} ∂̄g)
J = (g^{-1} ∂g)
J^a
J^α, J^α̂
J^{mn}
a = 0 .. 9
α, α̂ = 1 ... 16
m ∈ SO(4,1) × SO(5)
PSU(2,2|4)
gauge-fix
T^a, T^α, T^α̂
SO(4,1) × SO(5)
S = r^2 ∫d^2z (J^a J̄^a + (J^α J̄^α̂ − J^α̂ J̄^α) δ_{αα̂}
+ ½ (J^α J̄^α̂ + J^α̂ J̄^α̂) δ_{αα̂}
+ ω ∇̄λ + ω̂ ∇λ̂ + R(ω λ)(ω̂ λ̂))
ω ∇̄λ = ω ∂̄λ + (ω γ^{mn} λ) J̄_{mn}
∂̄B = QΛ


PP-2R2
PSU(2,2|4)
gauge-fix
PSU(2,2|4)/SO(4,1)×SO(5)


FIRE EXIT
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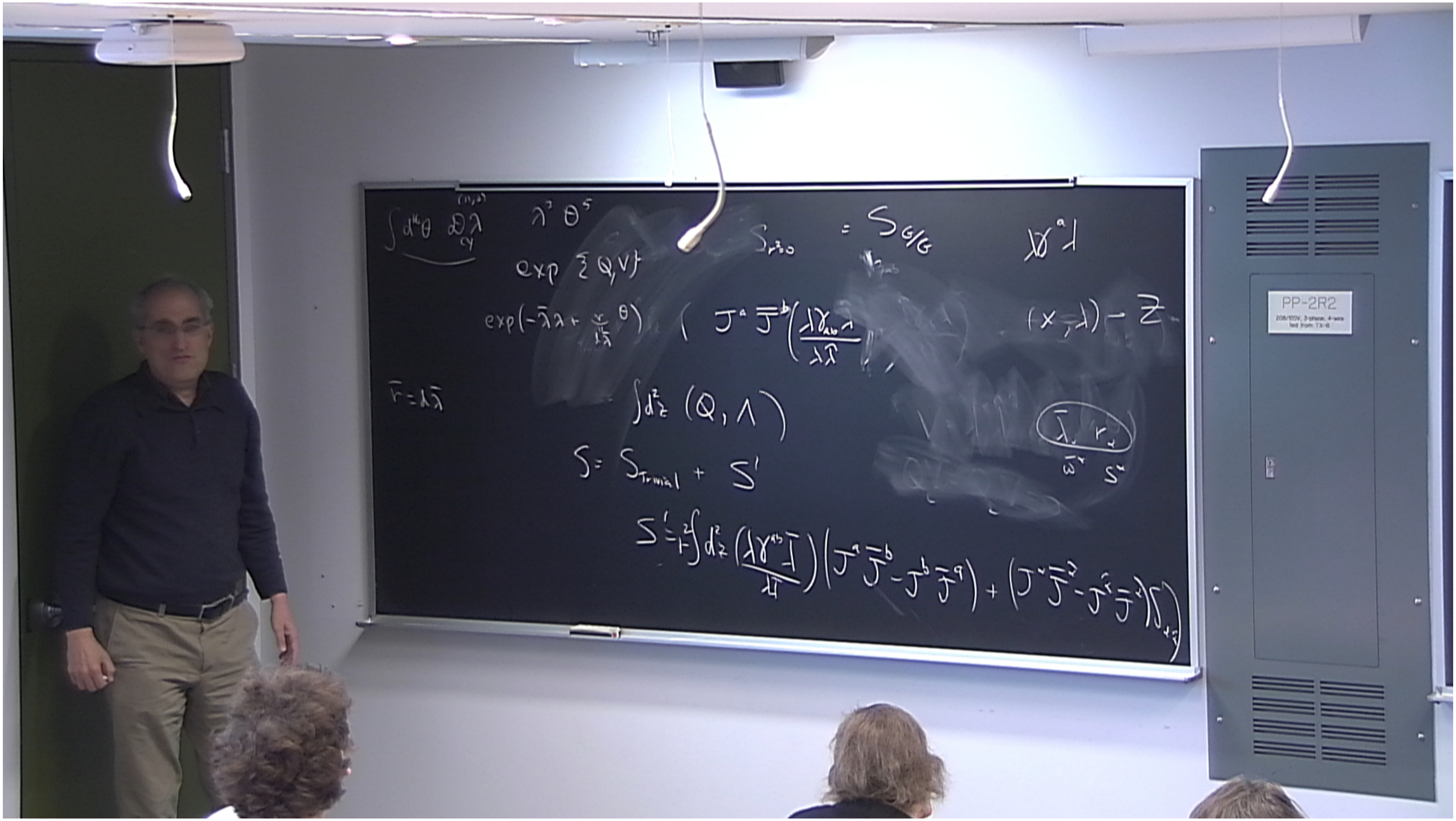
PP-2R2