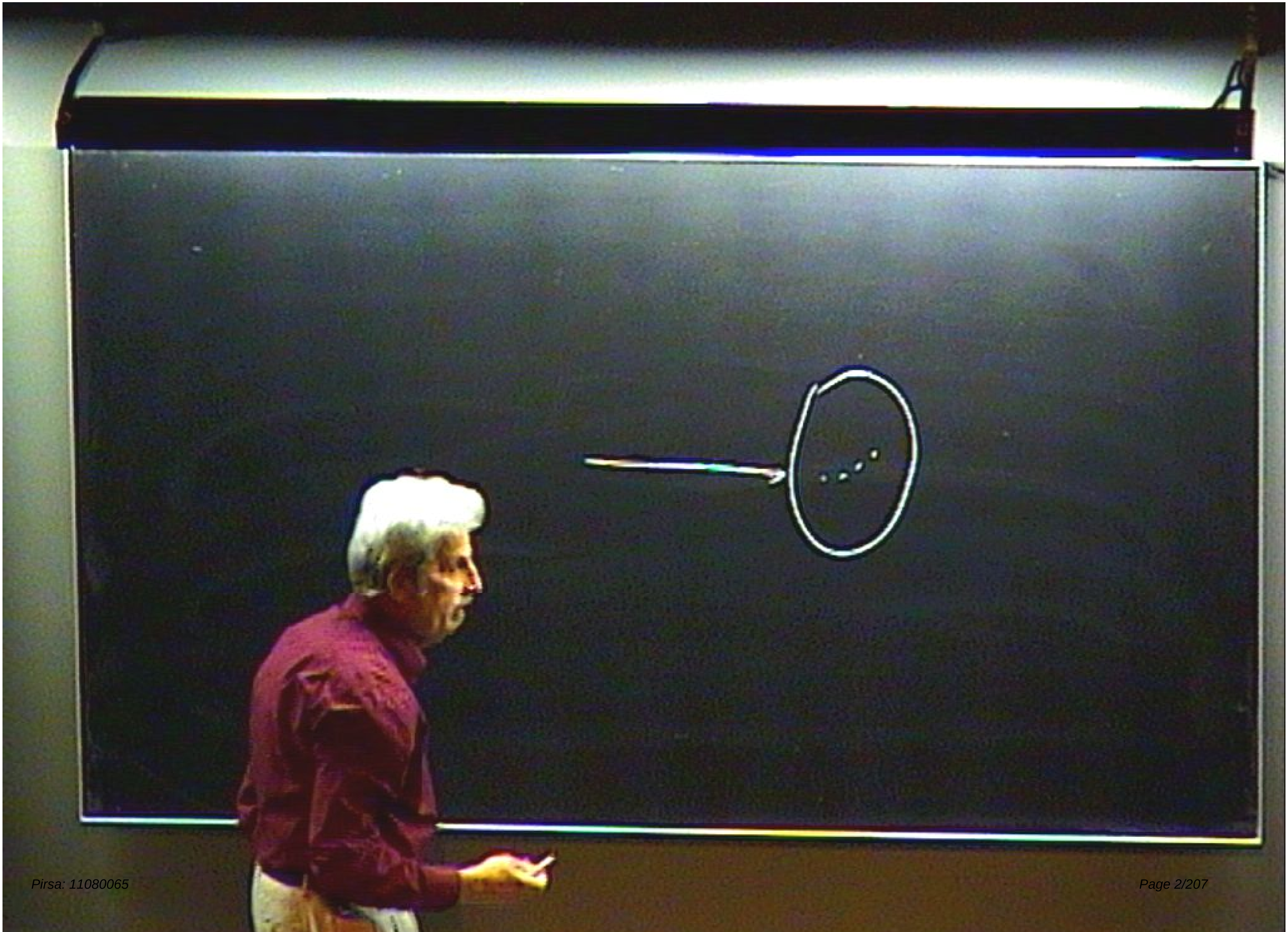
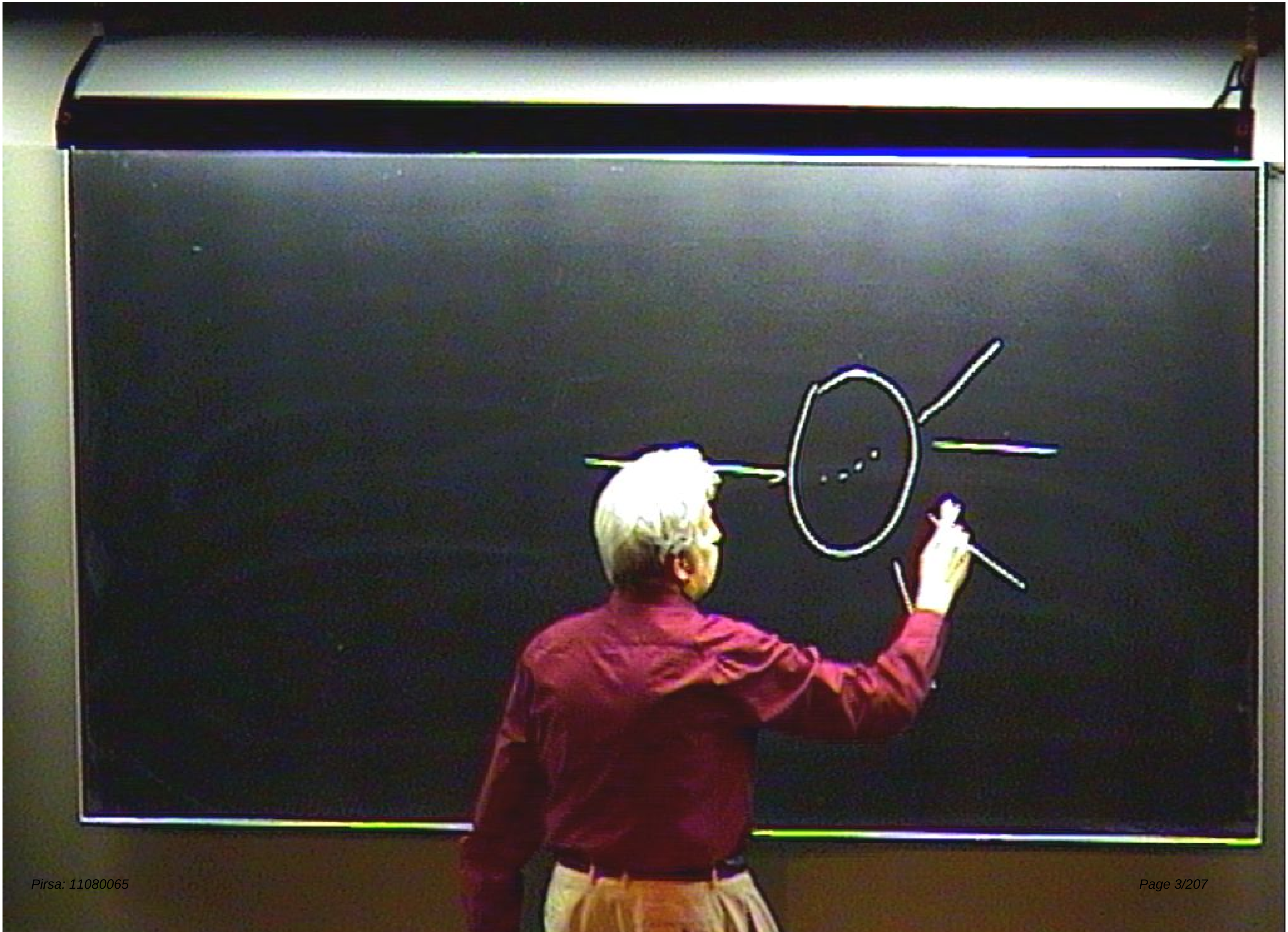
Title: A New Approach to Quantum Mechanics

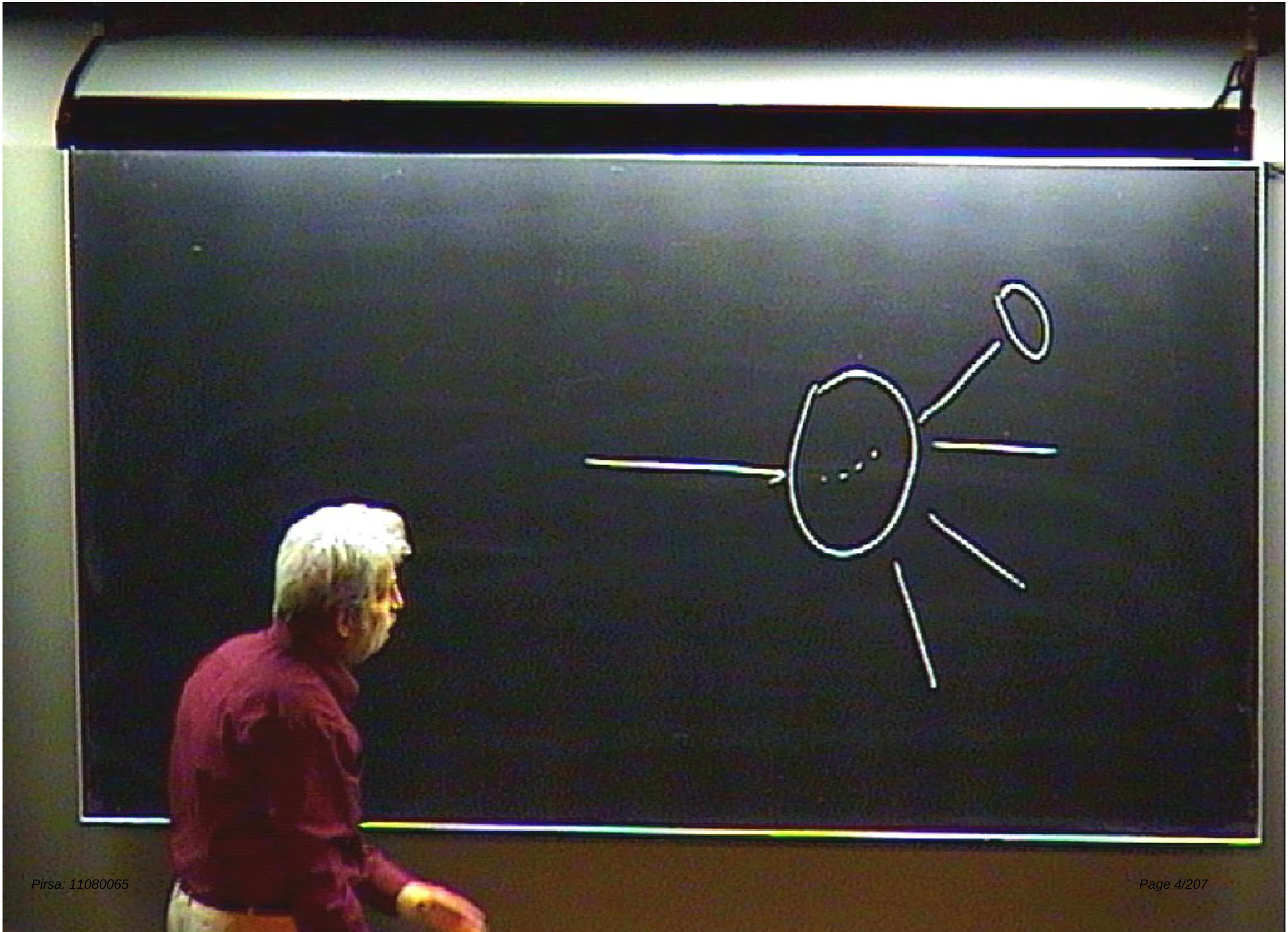
Date: Aug 23, 2011 11:00 AM

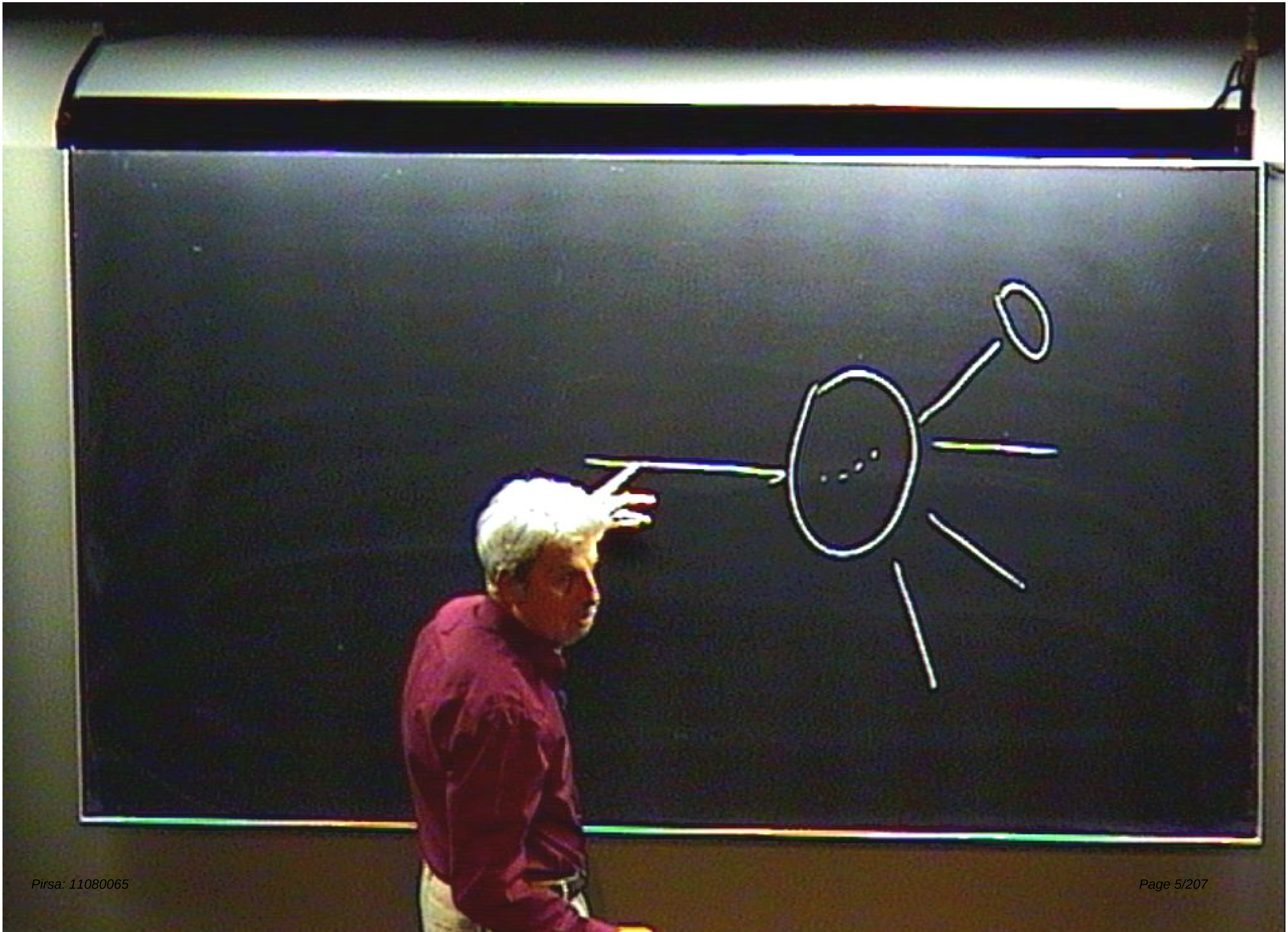
URL: http://pirsa.org/11080065

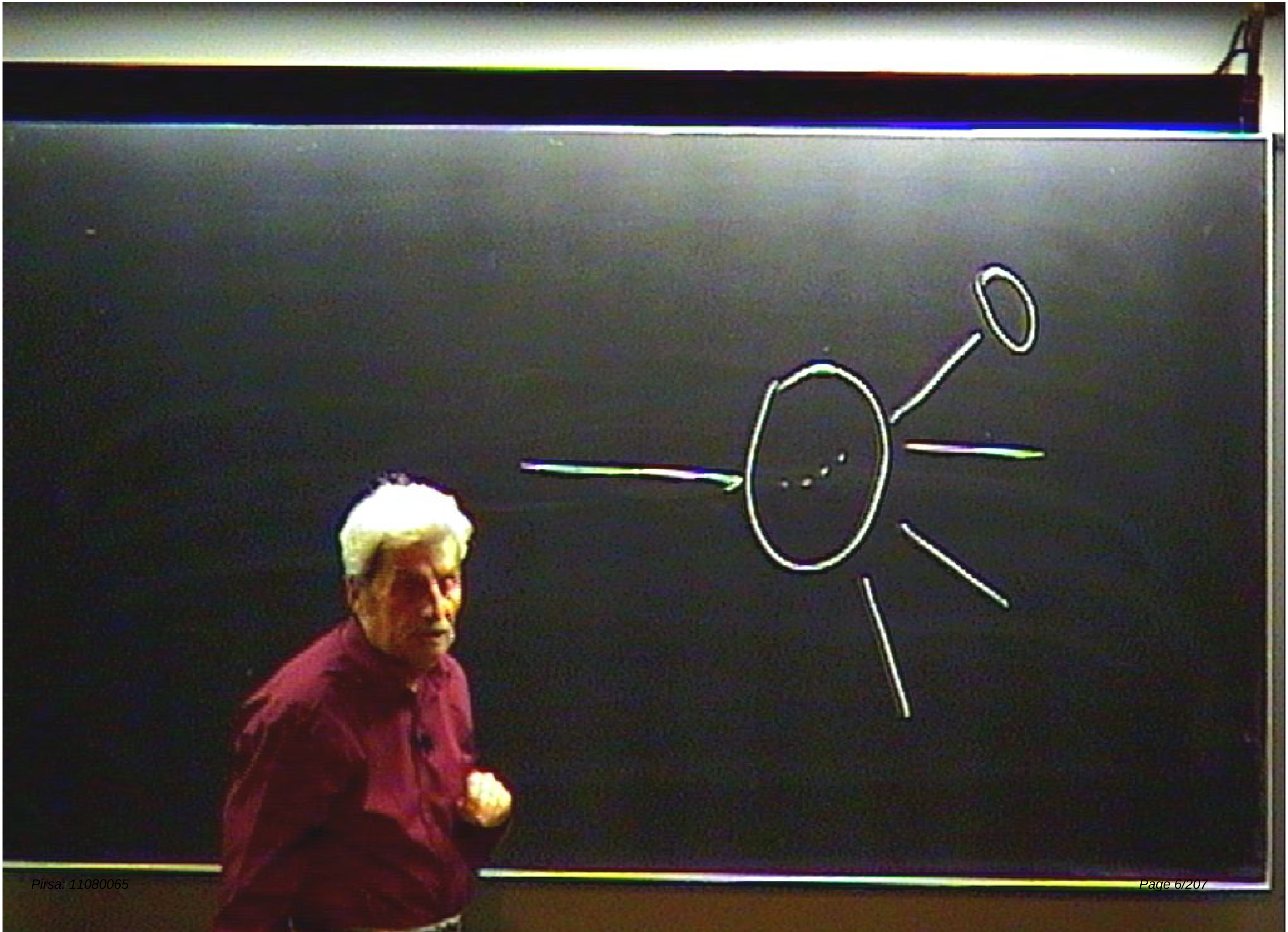
Abstract:

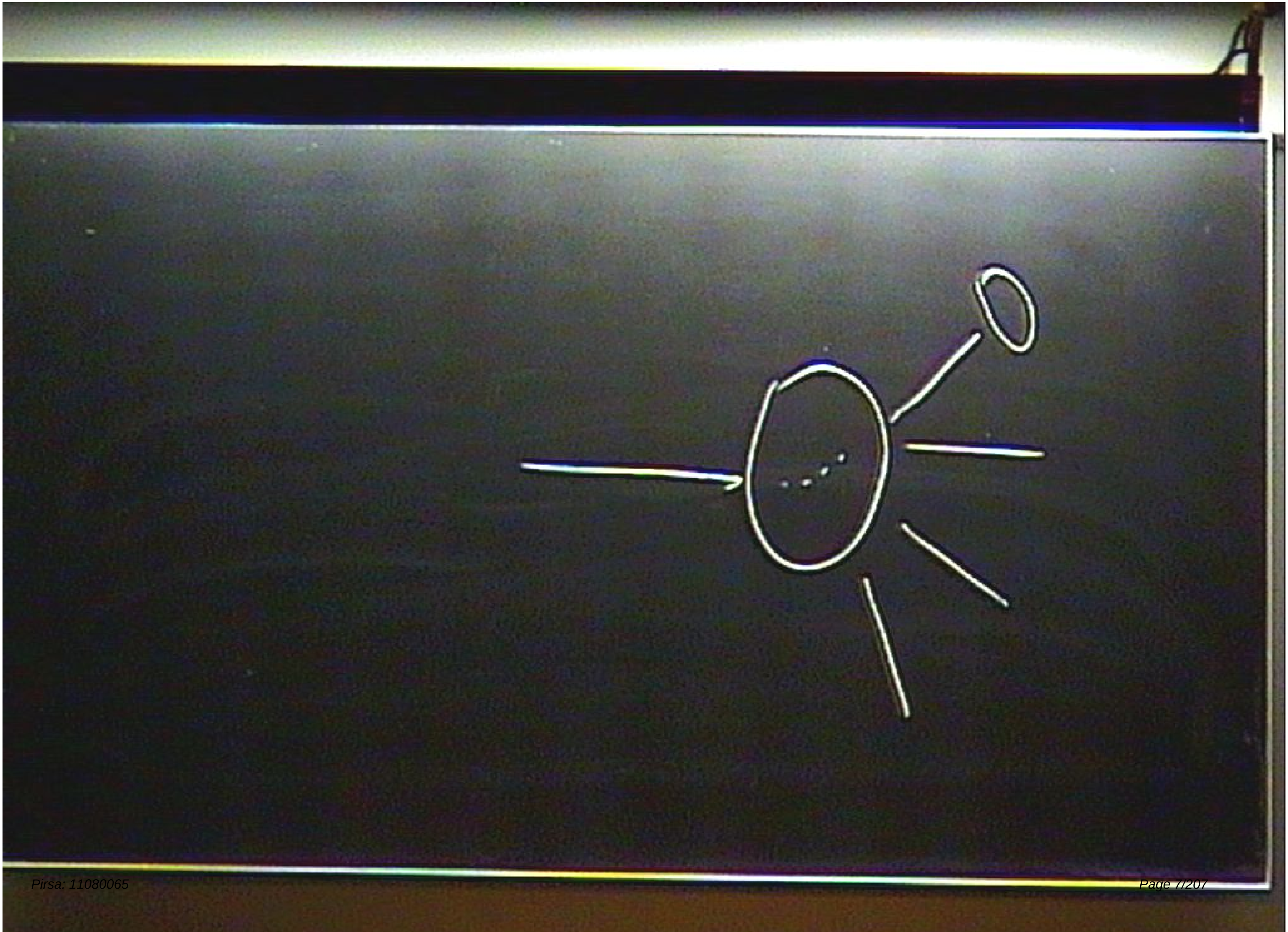


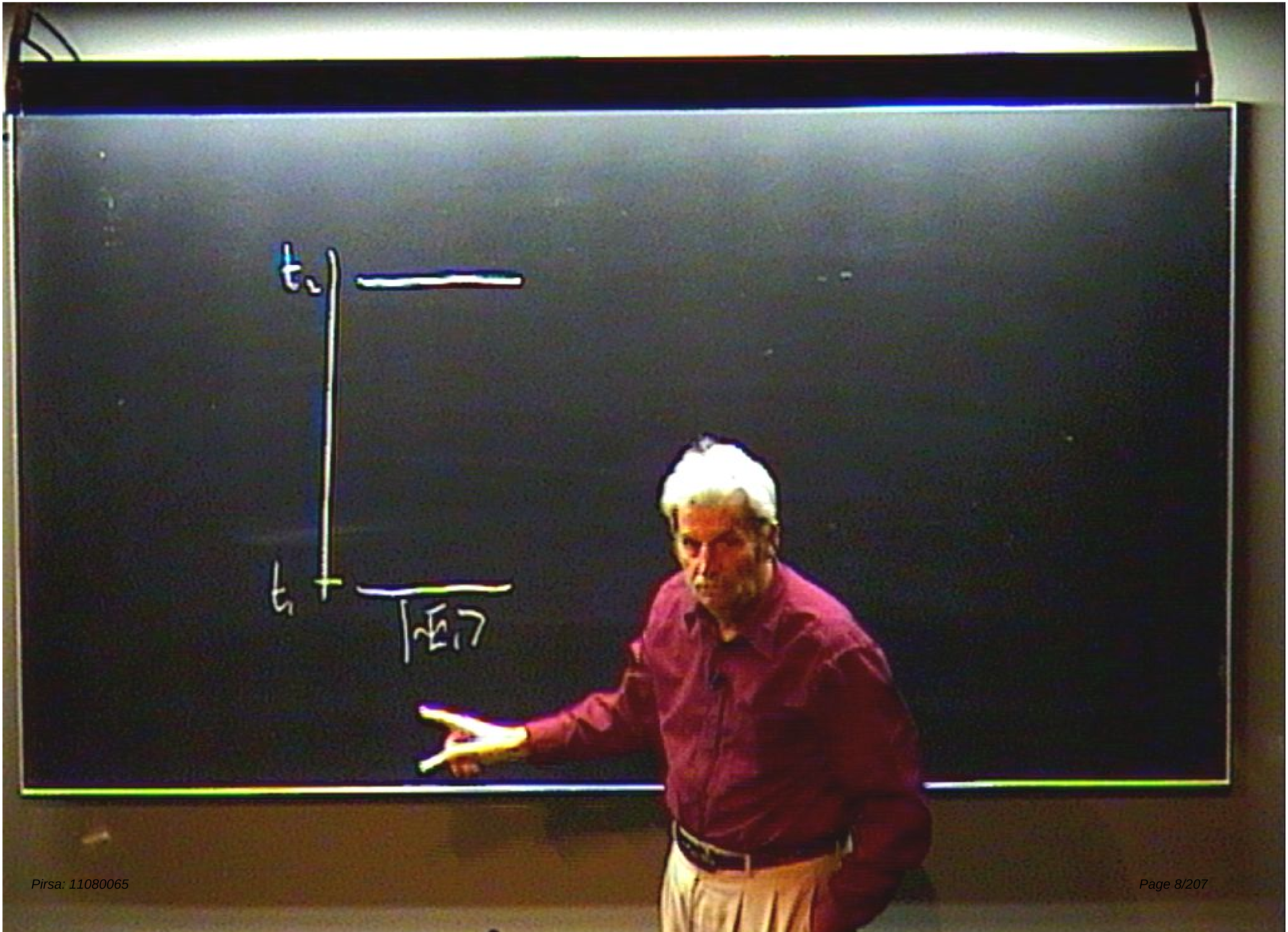


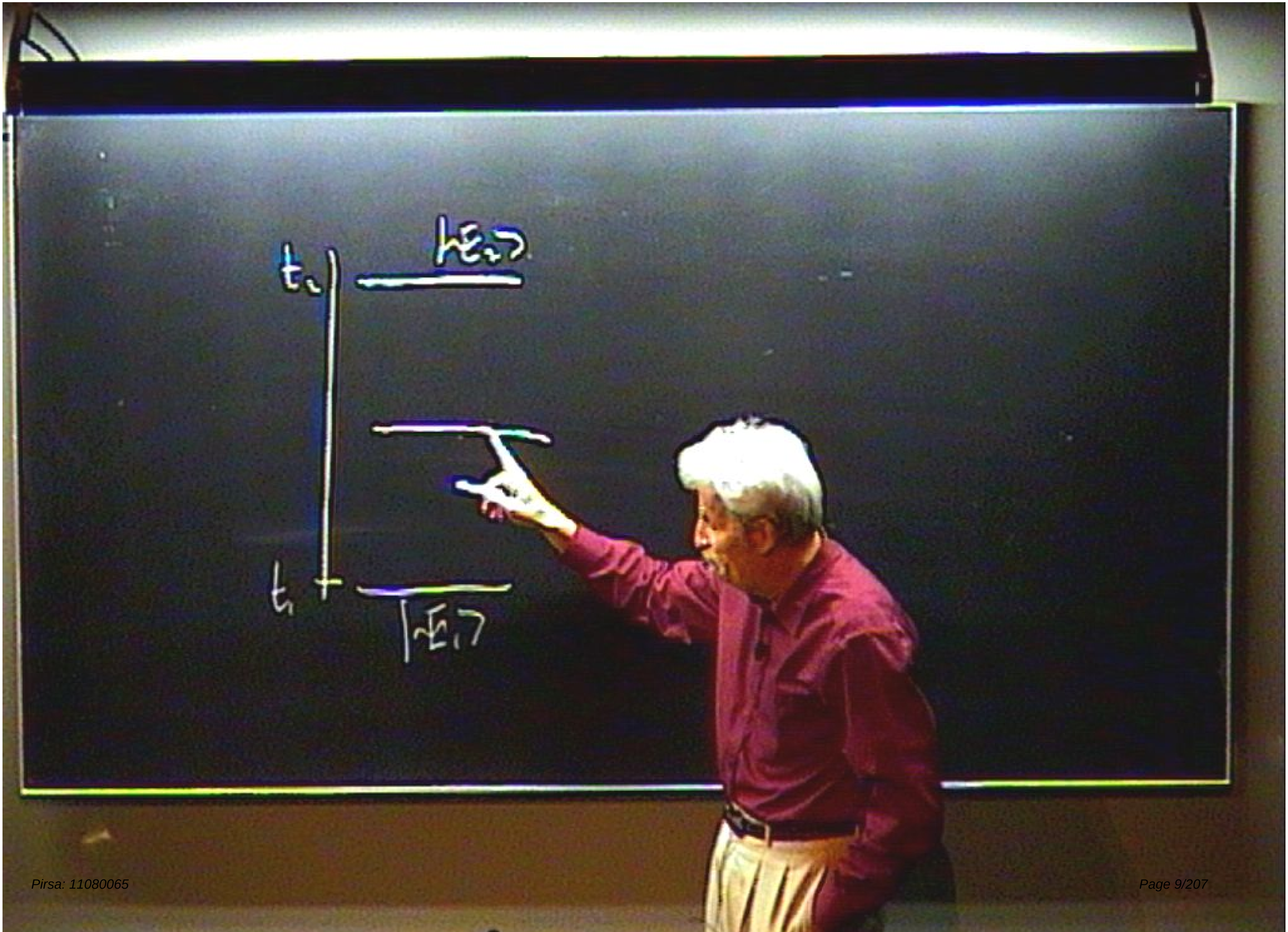


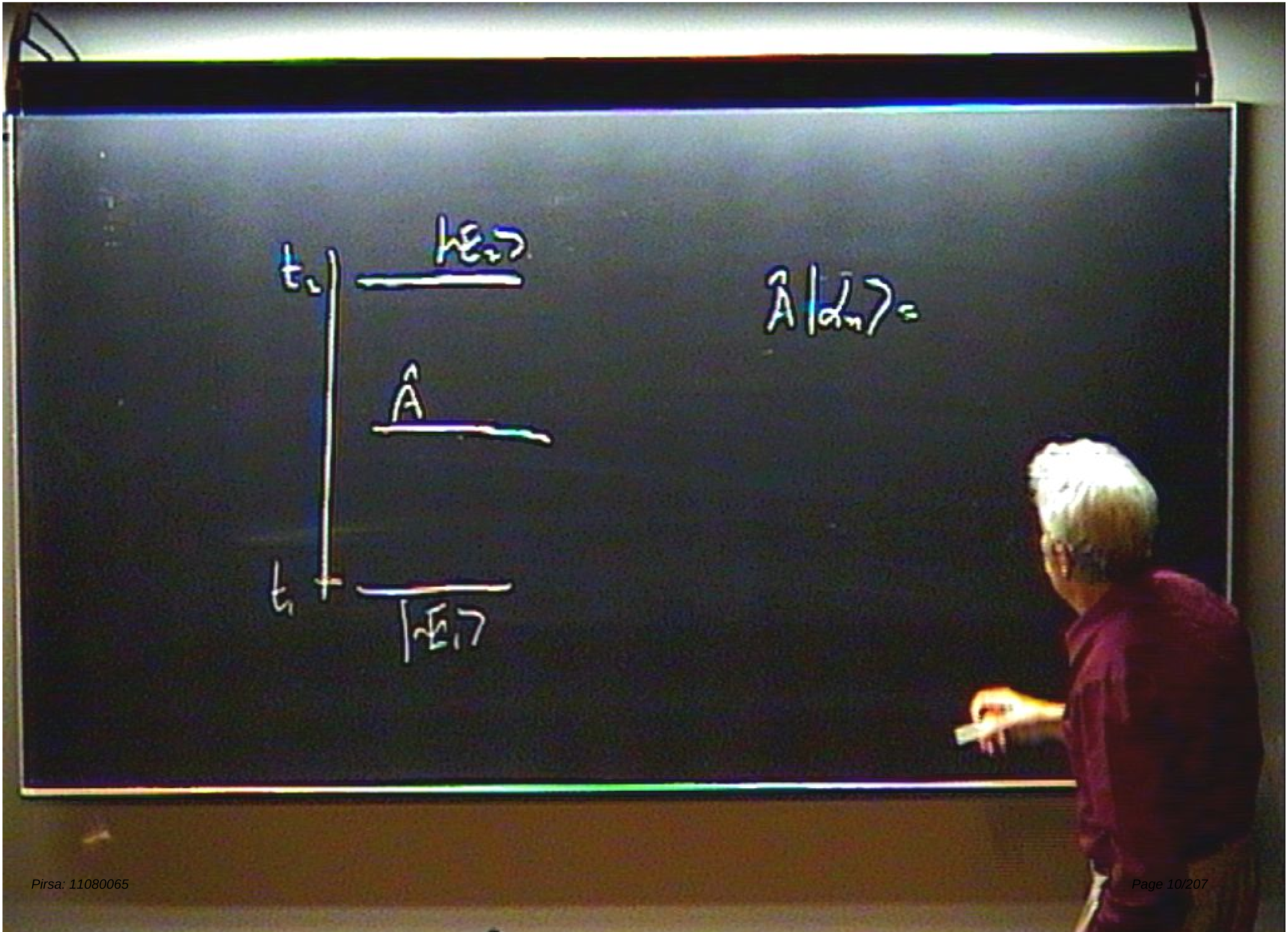


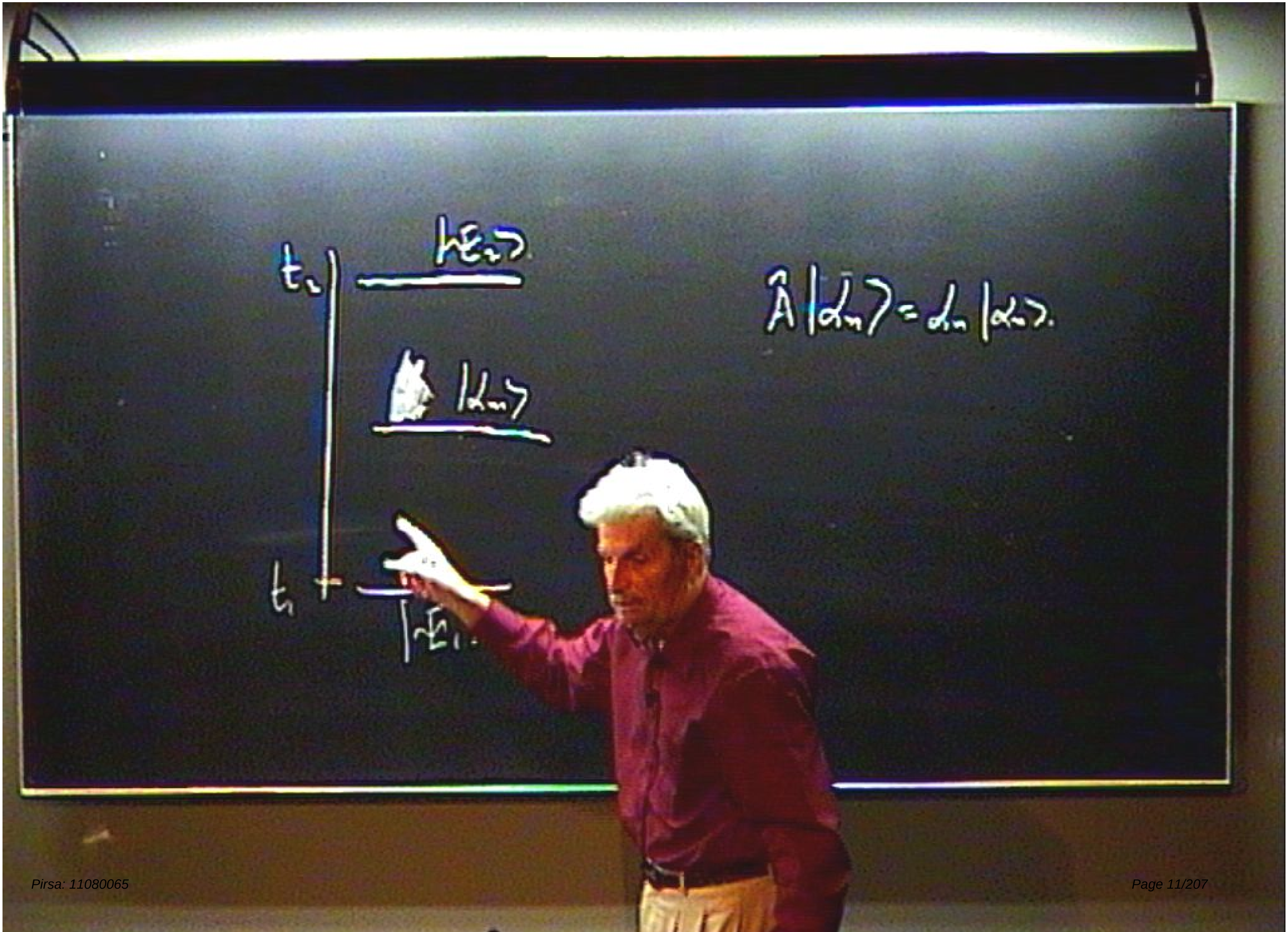


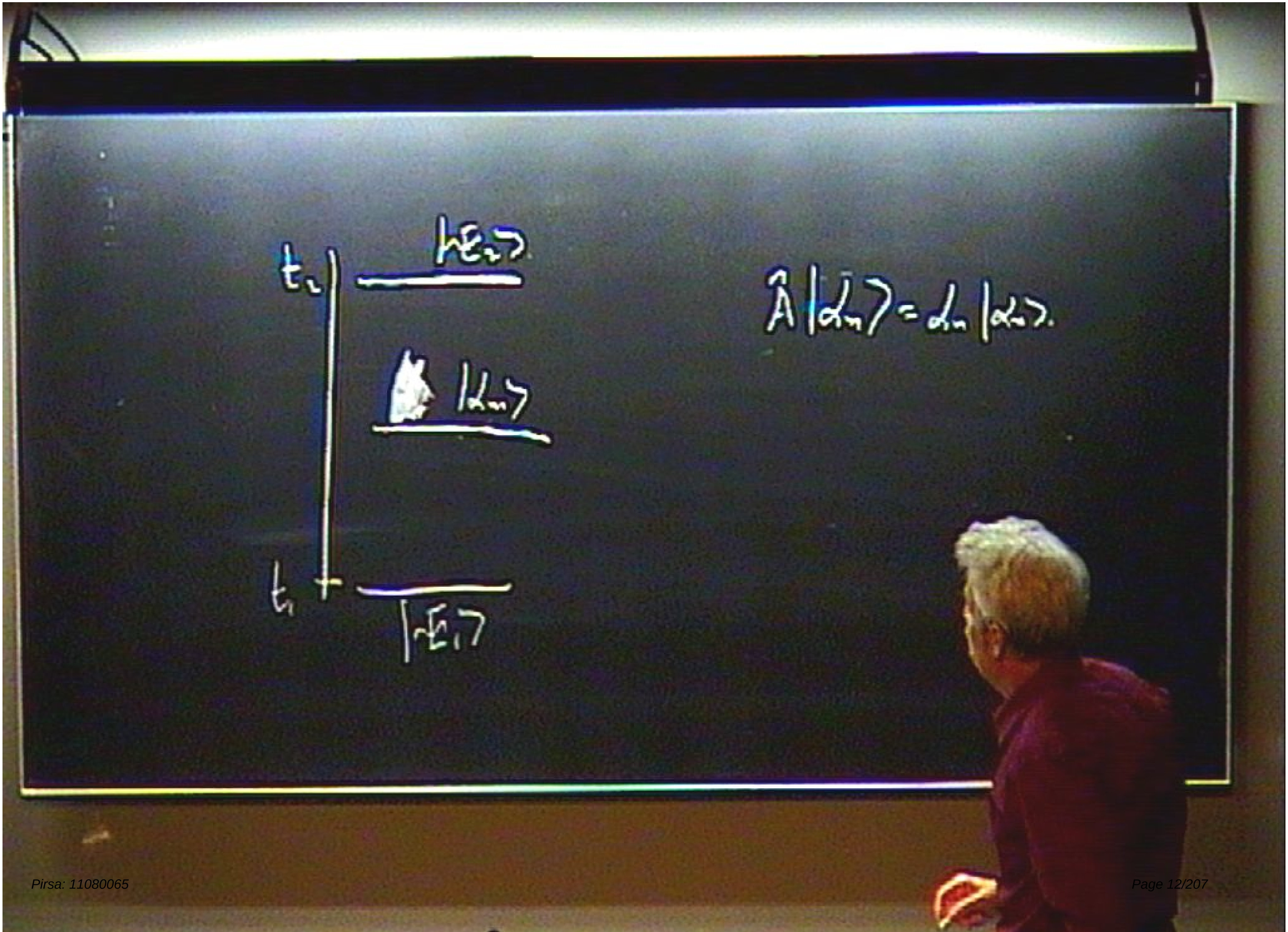


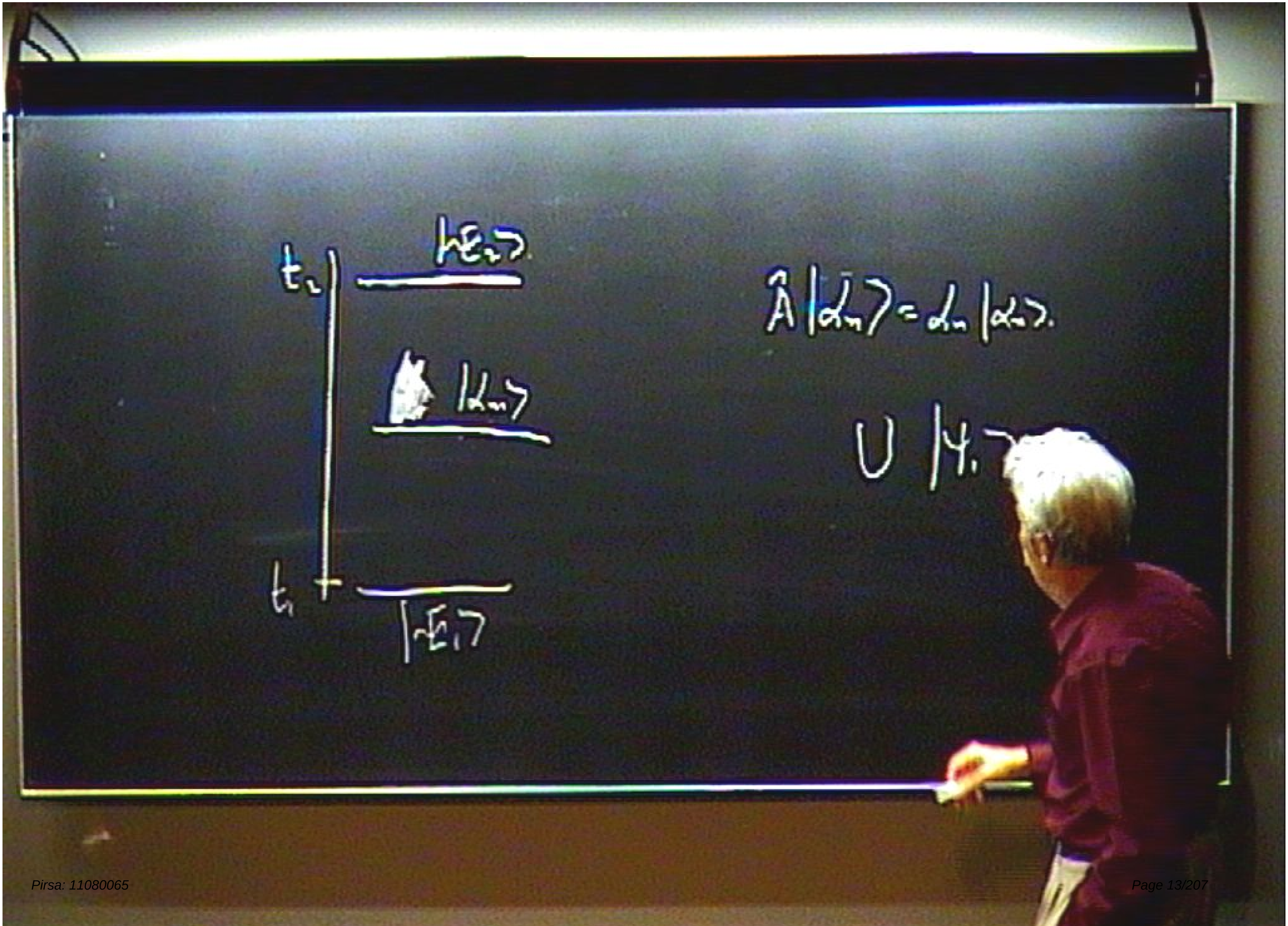

t2
t1

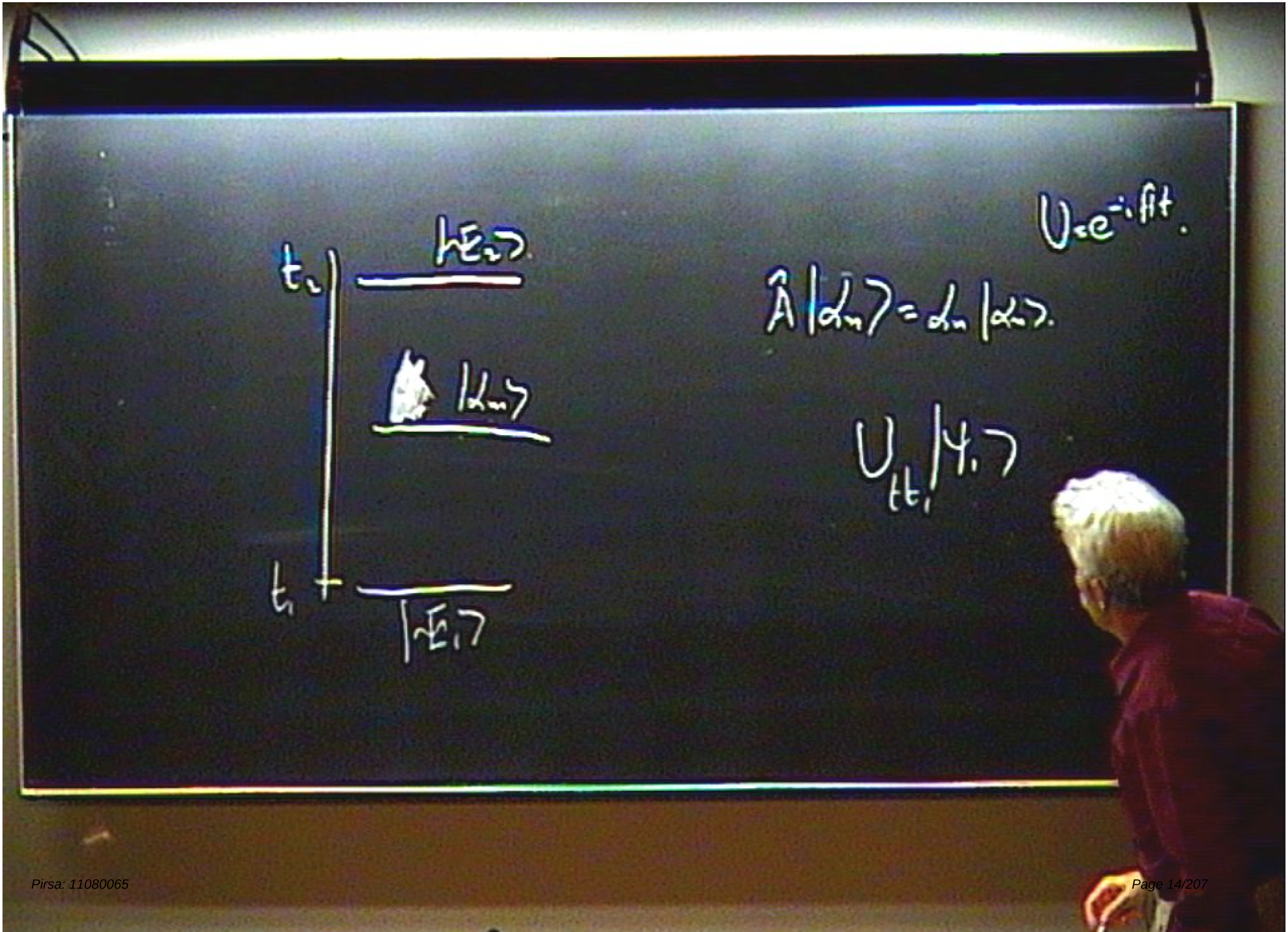



t₂
|E₂⟩
Â
t₁
|E₁⟩
Â|αₙ⟩ =

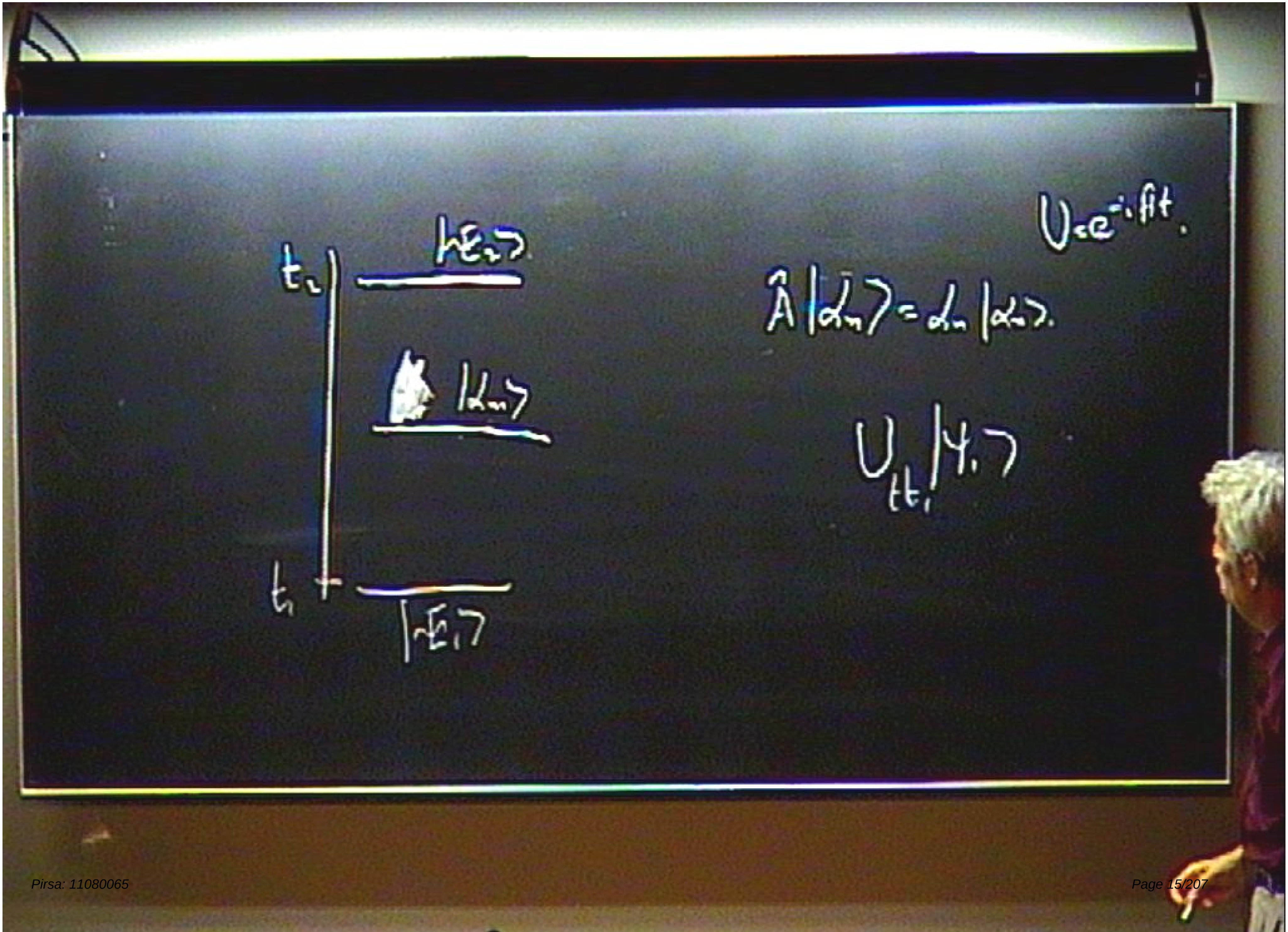

t_2
$|E_2\rangle$
$|\alpha_n\rangle$
t_1
$|E_1\rangle$
$\hat{A}|\alpha_n\rangle = \alpha_n|\alpha_n\rangle.$

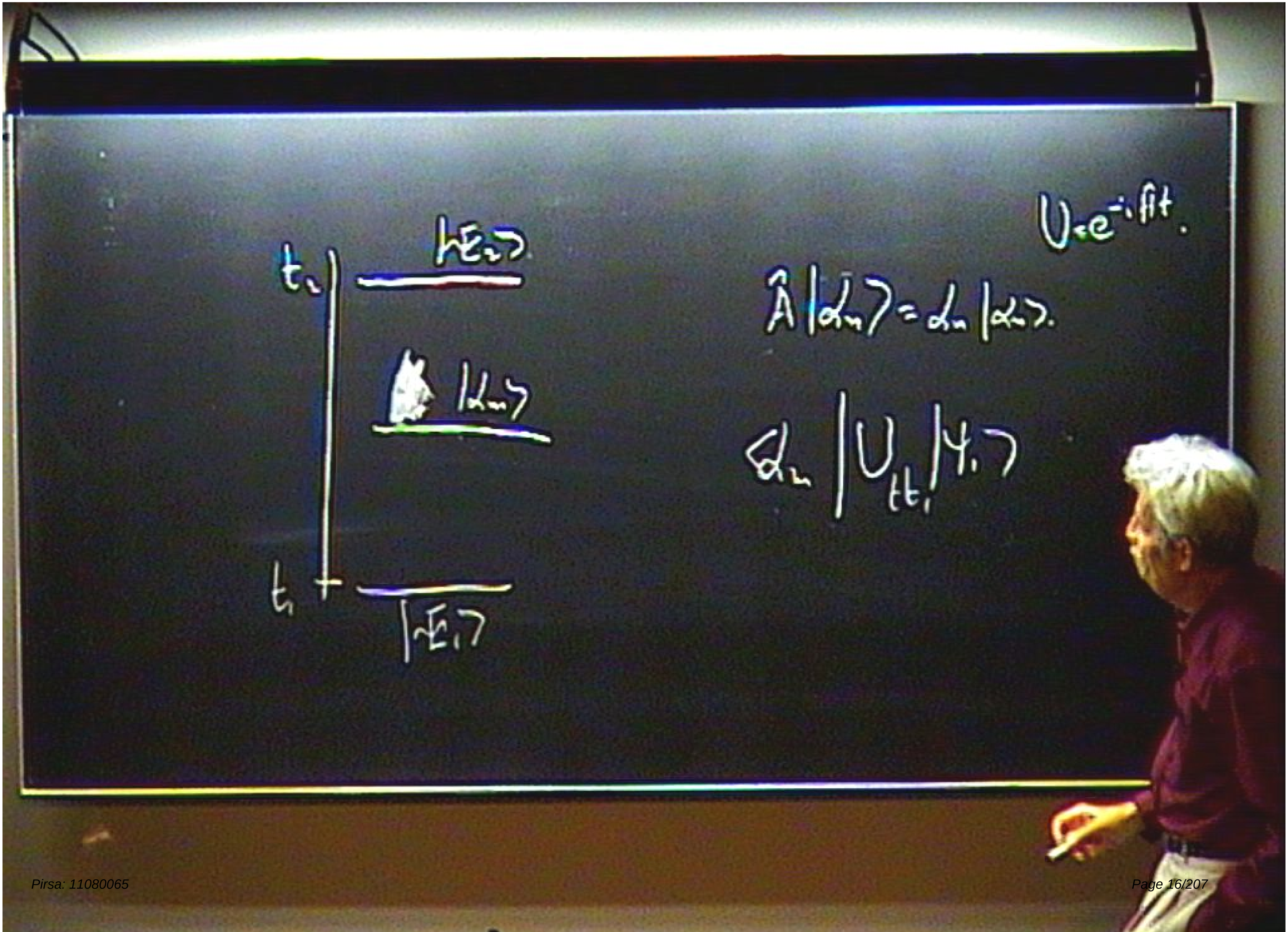

$|E_2\rangle$
t_2
$\hat{A}|\alpha_n\rangle = \alpha_n|\alpha_n\rangle$.
$|\alpha_n\rangle$
t_1
$|E_1\rangle$

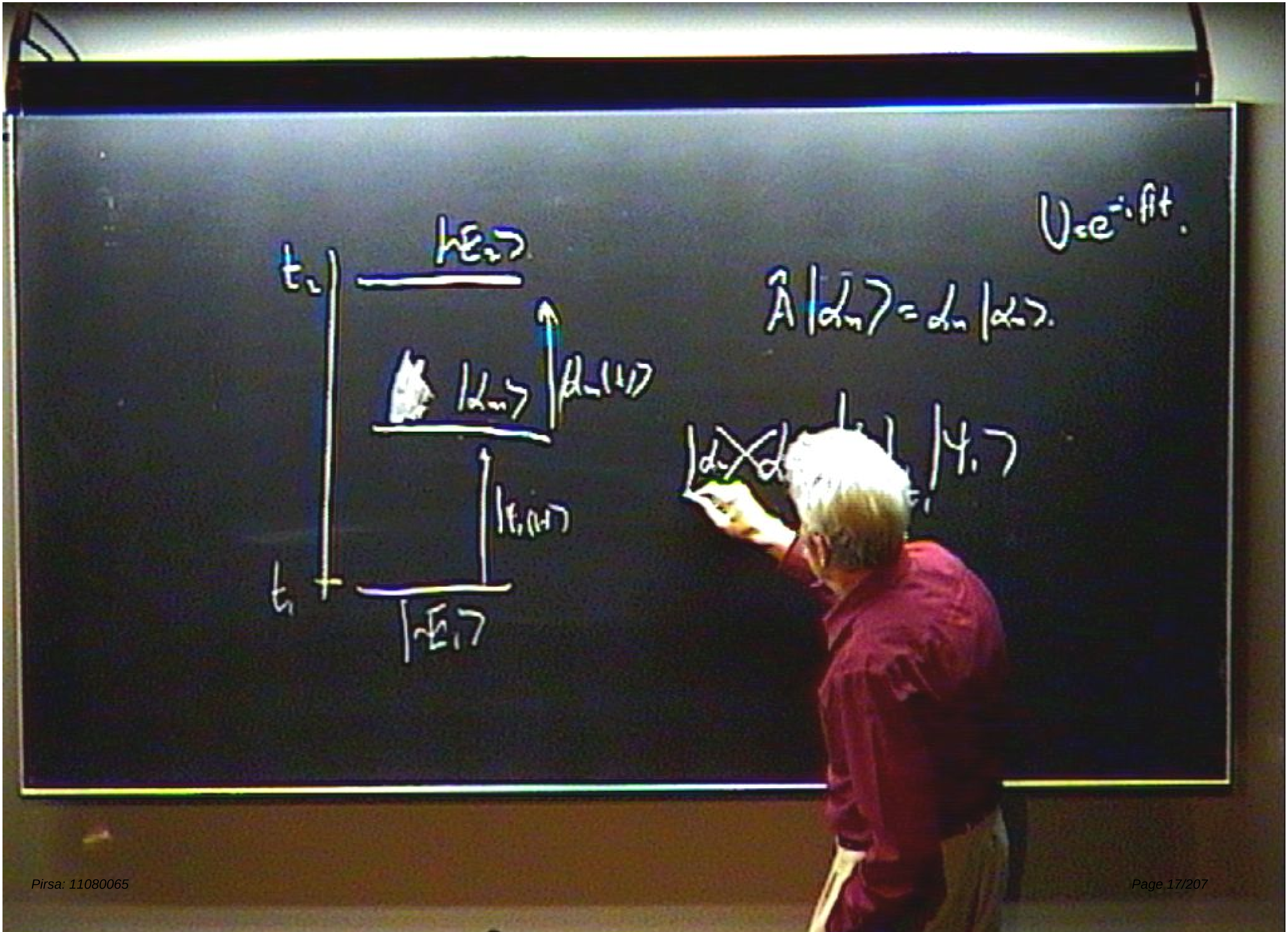

t₂
|E₂⟩
|αₙ⟩
t₁
|E₁⟩
Â|αₙ⟩ = αₙ|αₙ⟩
U |ψ₁⟩

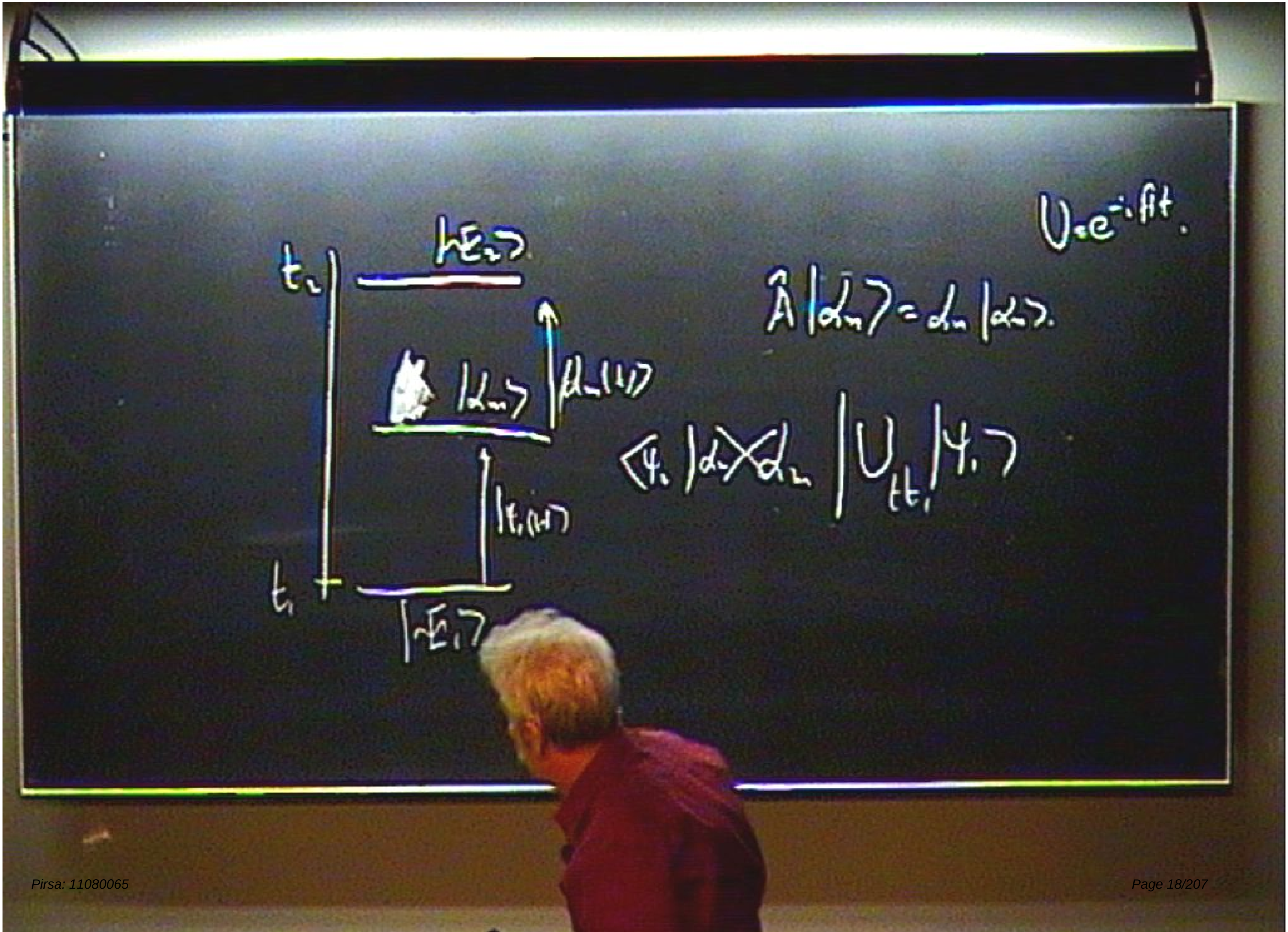


U = e^{-iHt}.
Â |α_n⟩ = α_n |α_n⟩.
U_{tt_1} |ψ_1⟩
t_2
|E_2⟩
|α_n⟩
t_1
|E_1⟩

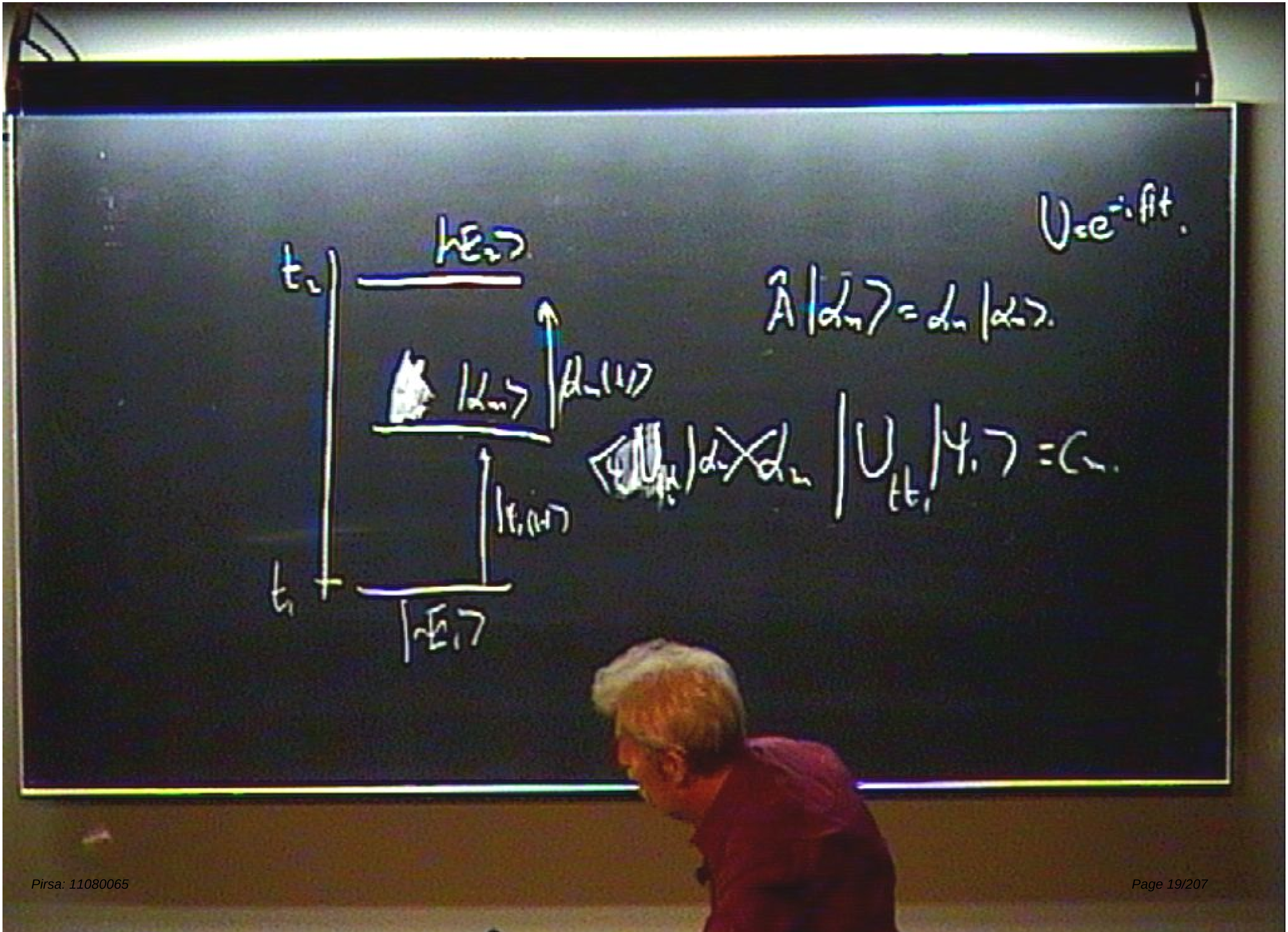

$U = e^{-i\hat{H}t}$
$\hat{A}|\alpha_n\rangle = \alpha_n|\alpha_n\rangle$
$U_{tt_1}|\psi_1\rangle$
t_2
$|E_2\rangle$
$|\alpha_n\rangle$
t_1
$|E_1\rangle$


U=e^{-iĤt}.
Â|α_n> = α_n|α_n>.
<α_n|U_{tt_1}|ψ_1>
t_2
|E_2>
|α_n>
t_1
|E_1>

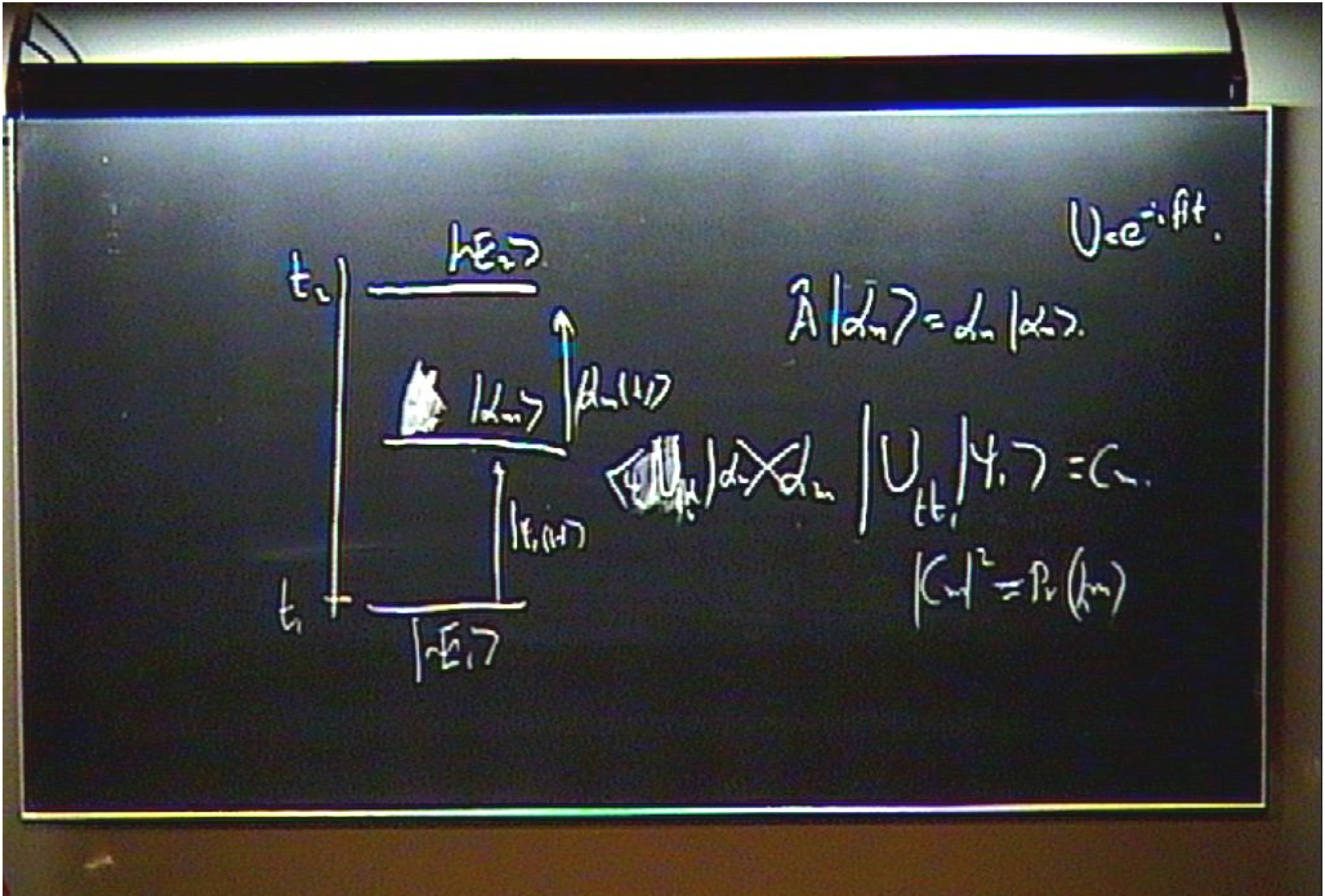

U=e^{-iHt}.
Â|α_n⟩ = α_n|α_n⟩.
t_2
|E_2⟩
|α_n⟩
t_1
|E_1⟩



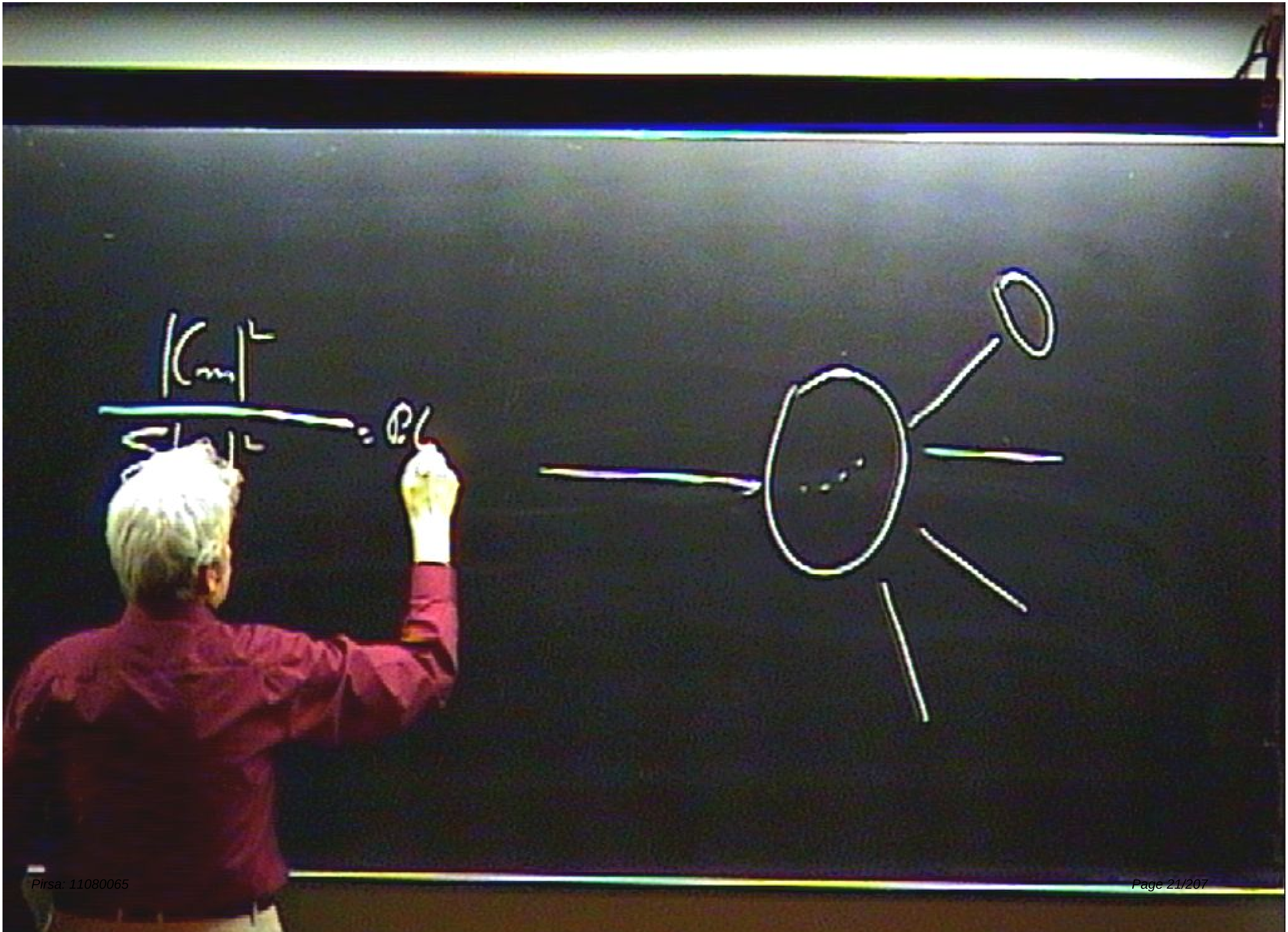
U=e^-iĤt.
Â|αn⟩ = αn|αn⟩.
⟨ψ1|αn⟩⟨αn|Utt1|ψ1⟩

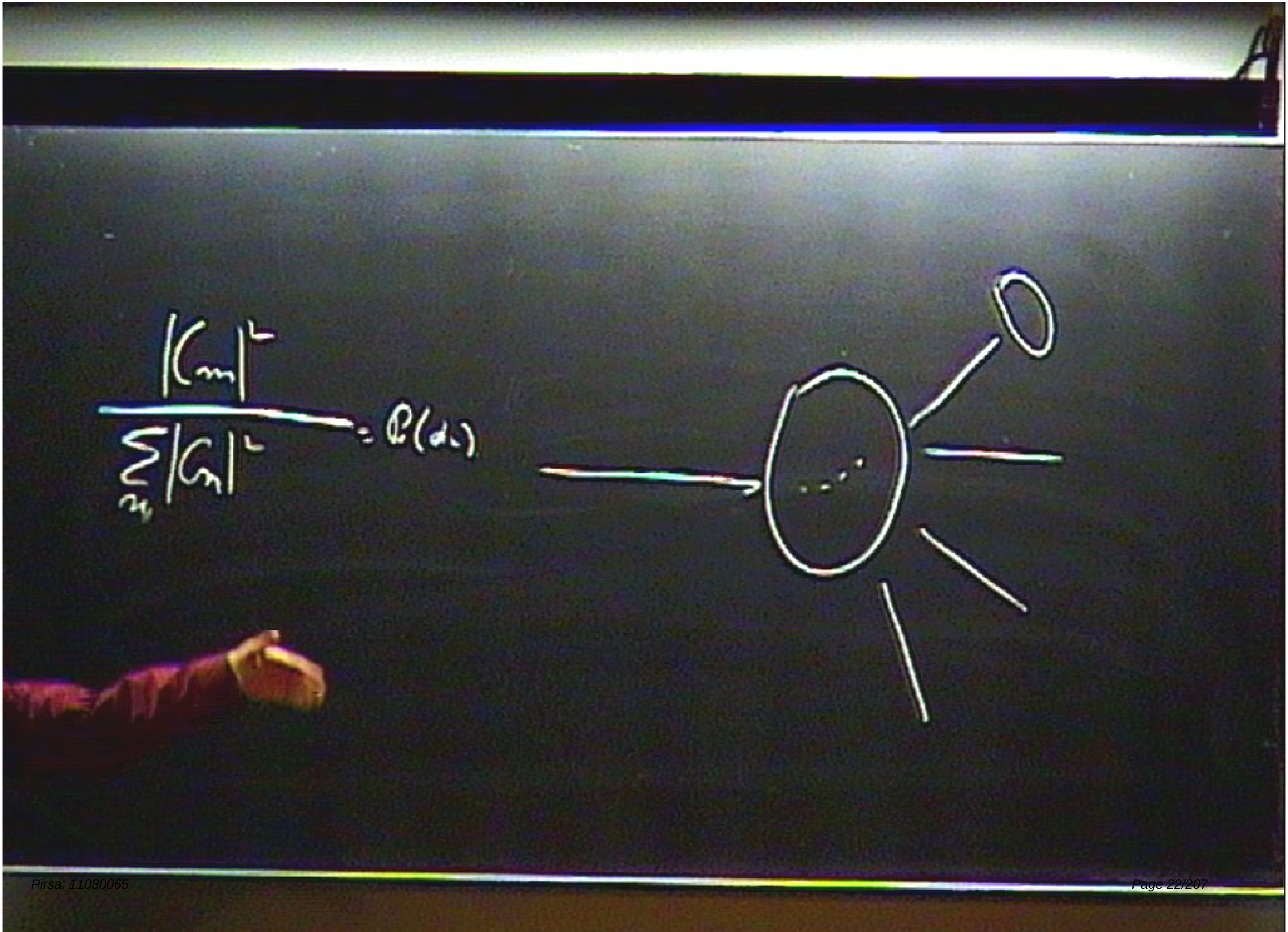


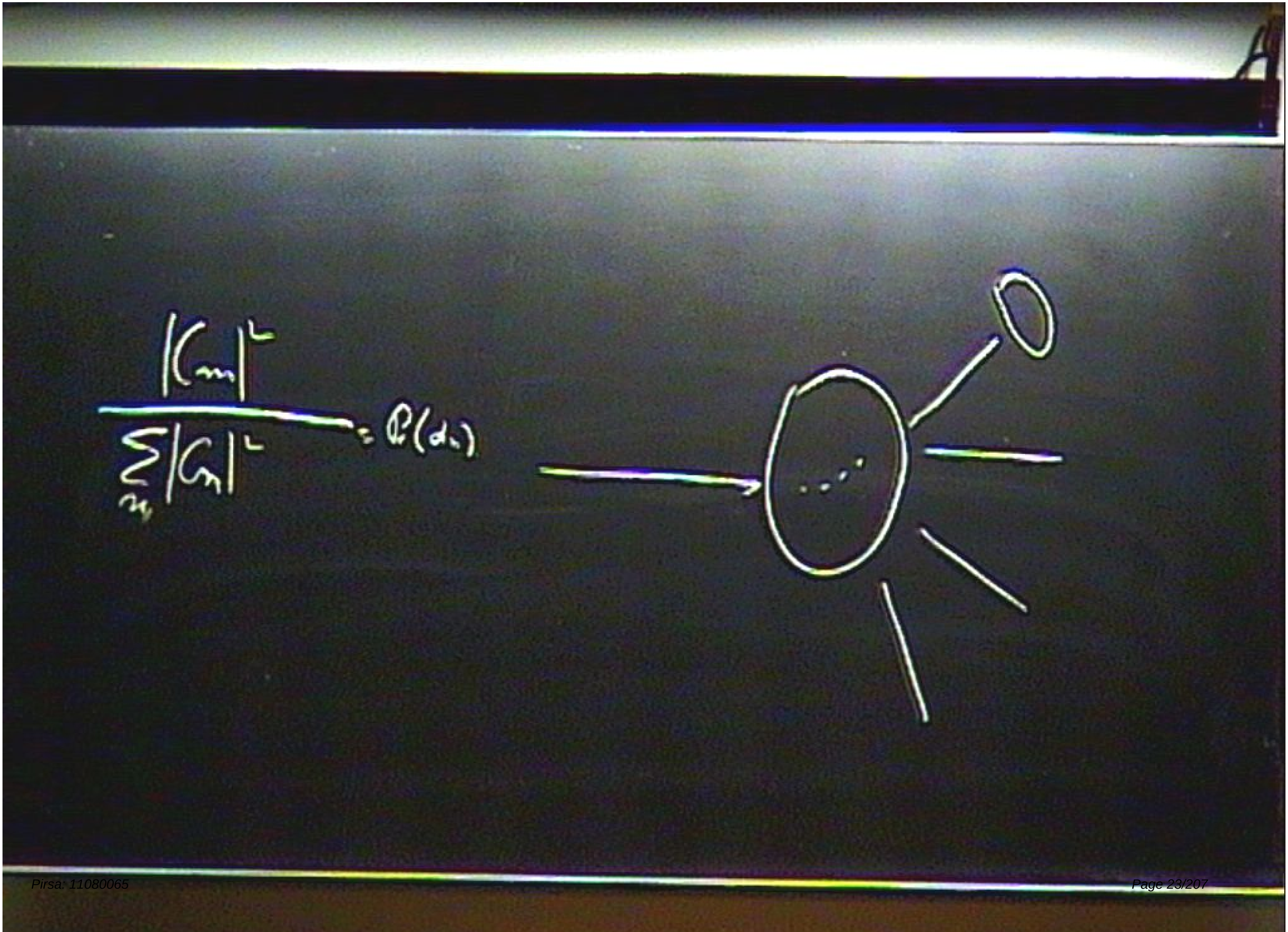
U=e^{-iĤt}
Â|α_n⟩ = α_n|α_n⟩
t_2
t_1
|E_2⟩
|α_n⟩
|E_1⟩
= C_n

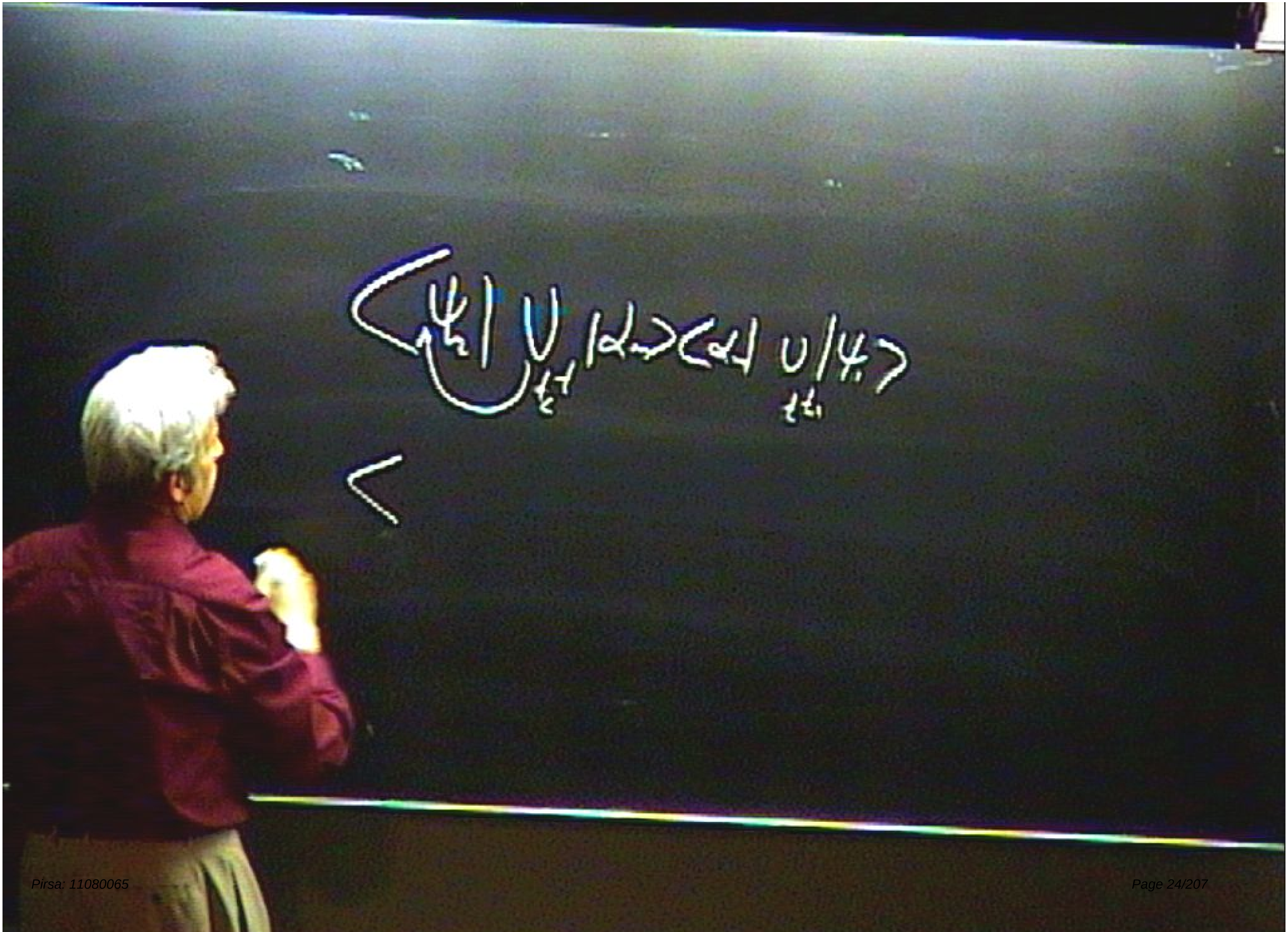


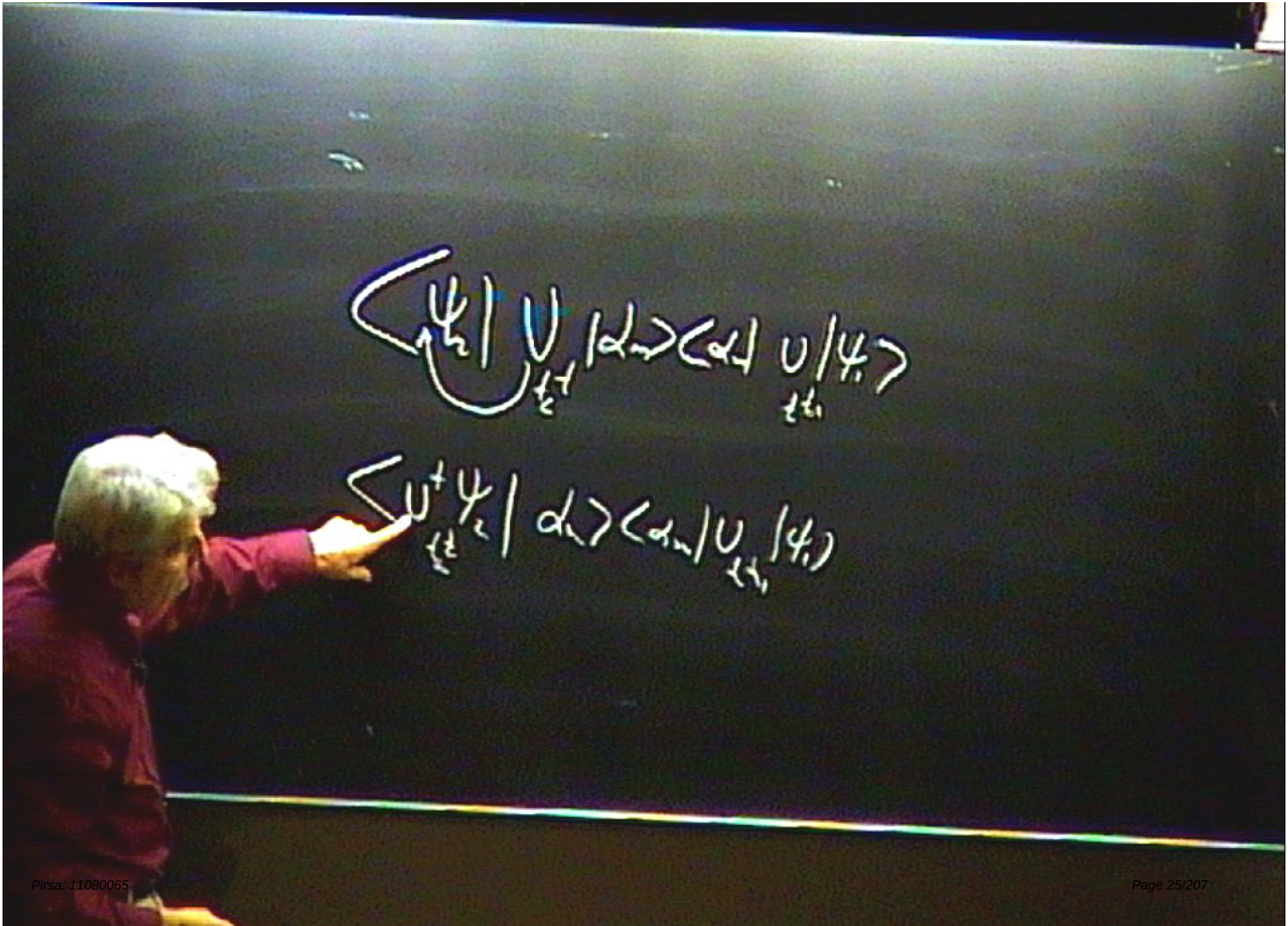
U = e^{-iHt}
t_2
|E_2⟩
Â|α_n⟩ = α_n|α_n⟩
|α_n⟩
t_1
|E_1⟩
|C_n|^2 = Pr(α_n)

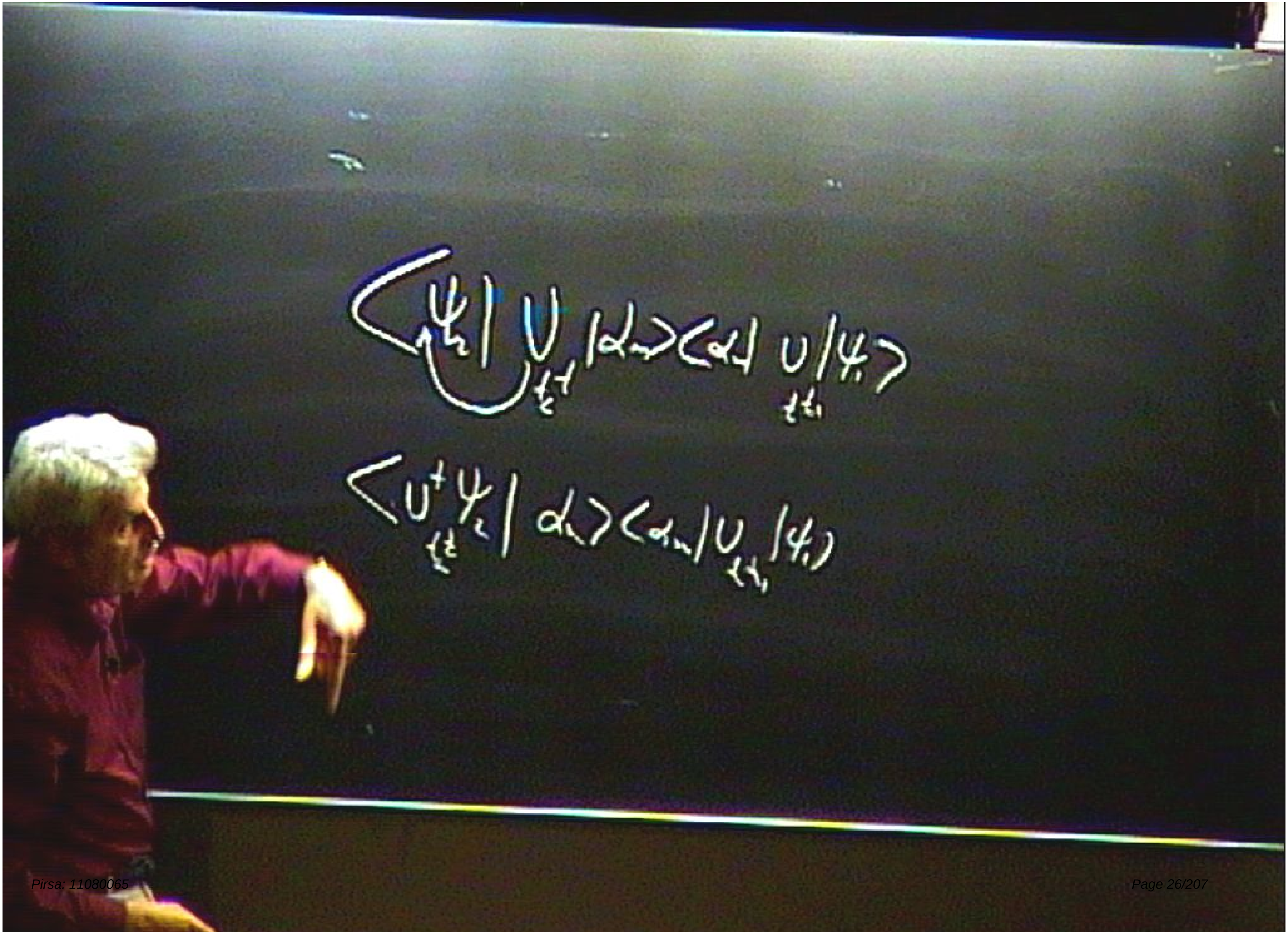


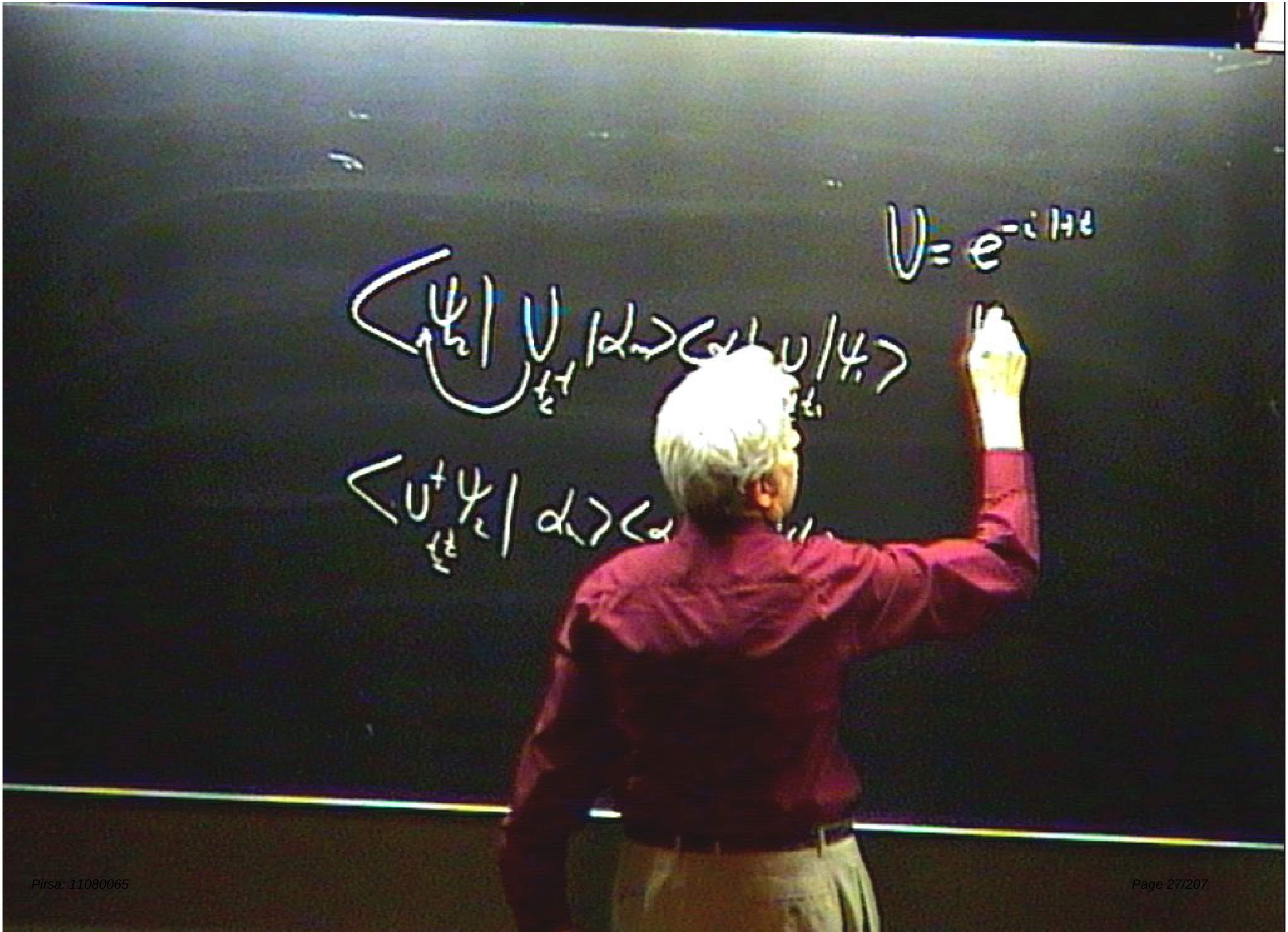

|C_m|^2 / Σ_n |C_n|^2 = P(a_m)

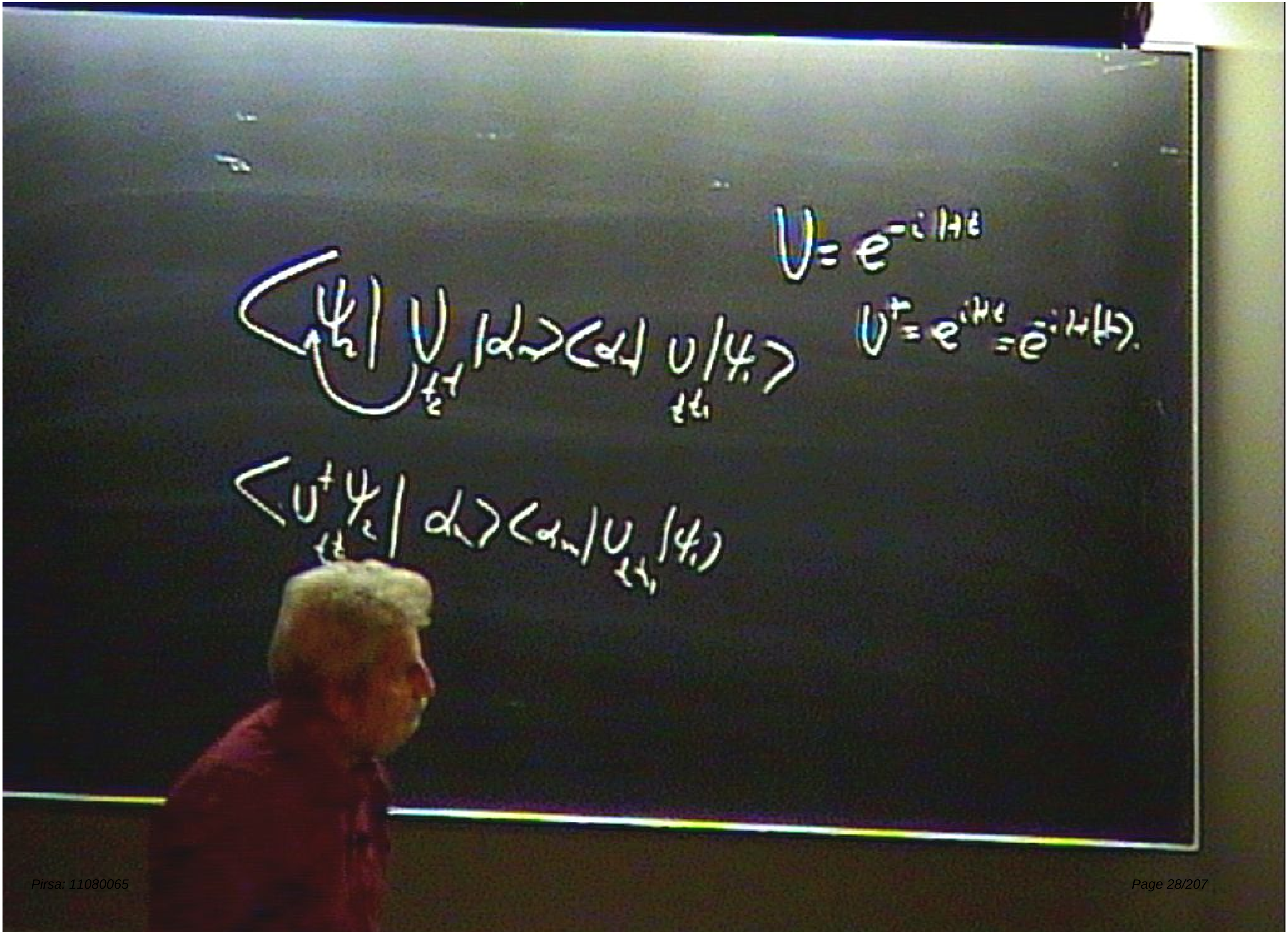

$\frac{|C_m|^2}{\sum_n |C_n|^2} = P(a_m)$


$\langle \psi_2 | U_{t_2 t} | \alpha_n \rangle \langle \alpha_n | U_{t t_1} | \psi_1 \rangle$


$\langle \psi_2 | U^\dagger_{t_2} | \alpha_m \rangle \langle \alpha_m | U_{t_1} | \psi_1 \rangle$
$\langle U^\dagger_{t_2} \psi_2 | \alpha_m \rangle \langle \alpha_m | U_{t_1} | \psi_1 \rangle$


$\langle \psi_2 | U_{t t'} | \alpha_m \rangle \langle \alpha_m | U_{t t_1} | \psi_1 \rangle$
$\langle U^\dagger_{t t'} \psi_2 | \alpha_m \rangle \langle \alpha_m | U_{t t_1} | \psi_1 \rangle$


$U = e^{-iHt}$

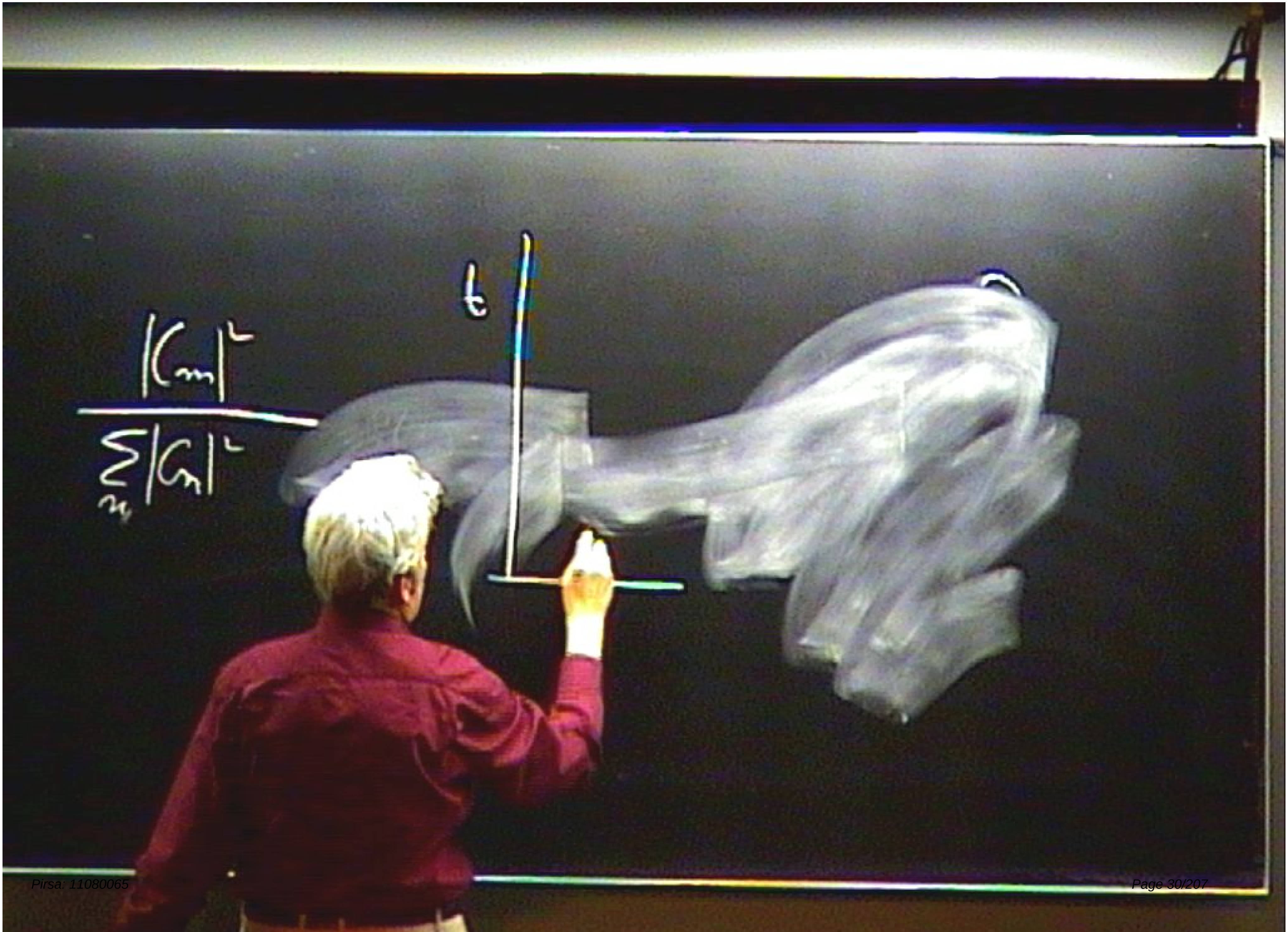

U = e^{-iHt}
U† = e^{iHt} = e^{-iH(-t)}
⟨ψ2| U_{t2-t} |α_n⟩⟨α_n| U_{t-t1} |ψ1⟩
⟨U†_{t2-t} ψ2 | α_n⟩⟨α_n| U_{t-t1} |ψ1⟩

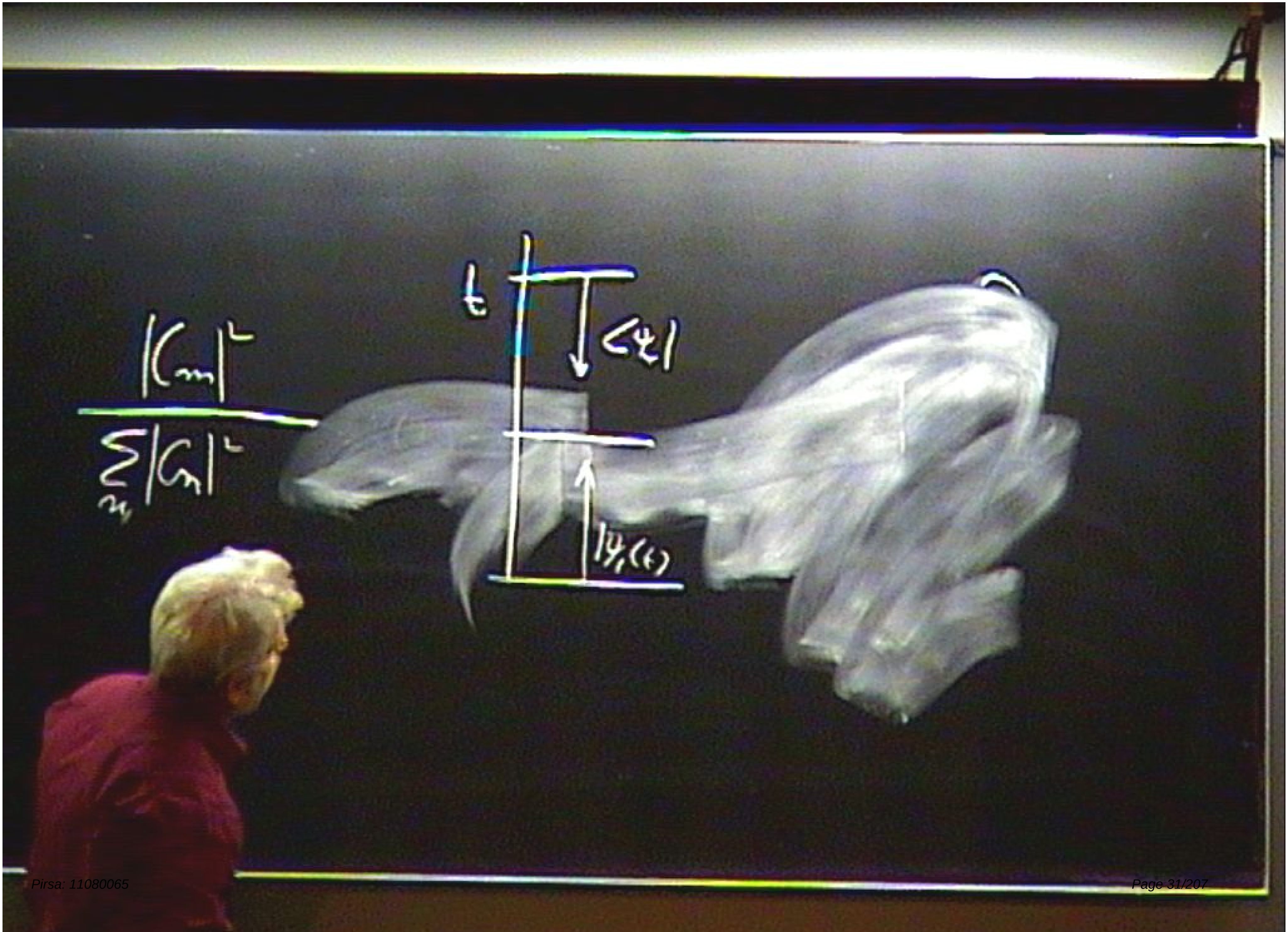
$$U = e^{-iHt}$$

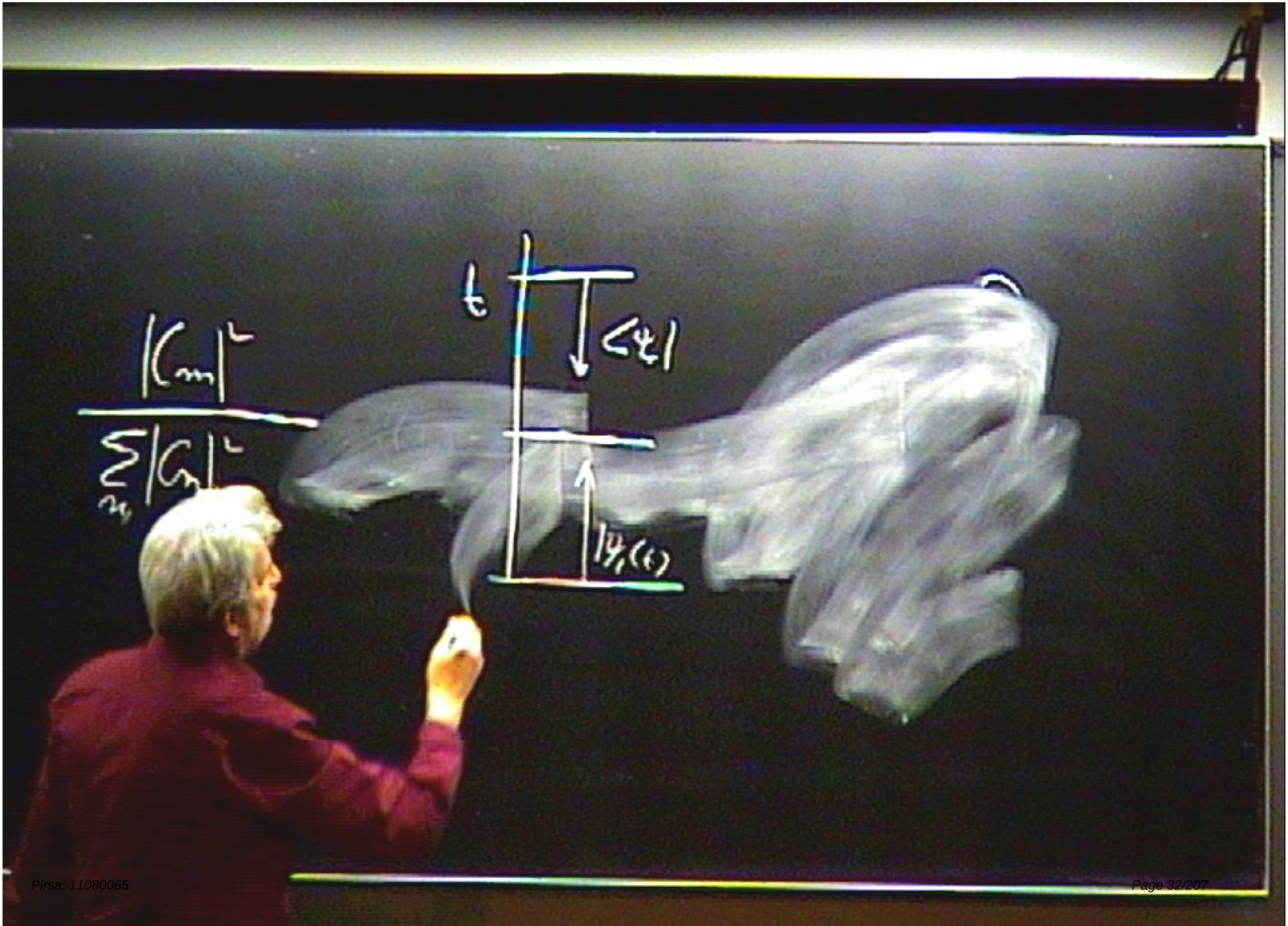
$$U^{\dagger} = e^{iHt} = e^{-iH(-t)}$$

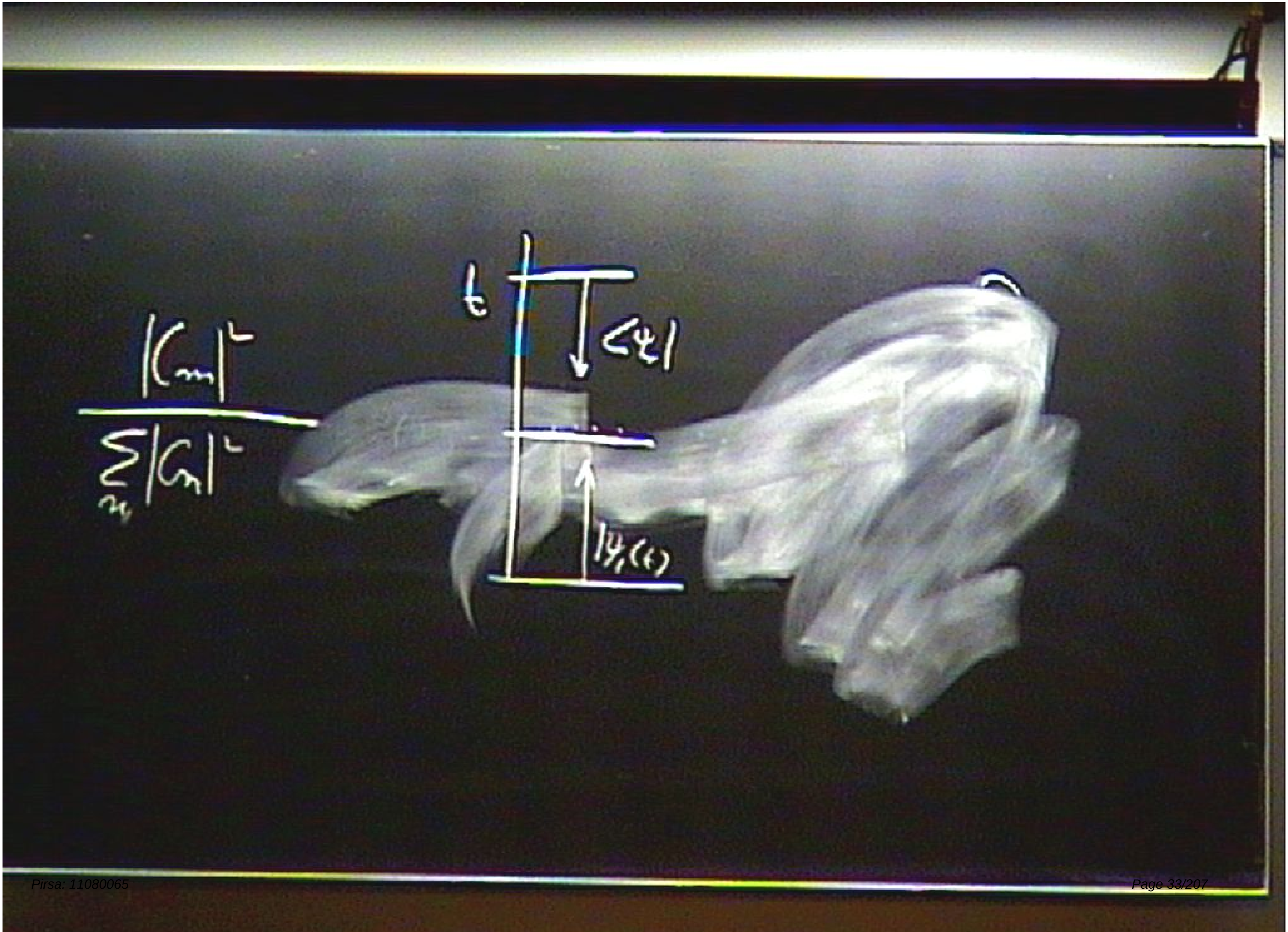
$$\langle \psi_2 | U_{t_2 t} | \alpha_m \rangle \langle \alpha_m | U_{t t_1} | \psi_1 \rangle$$

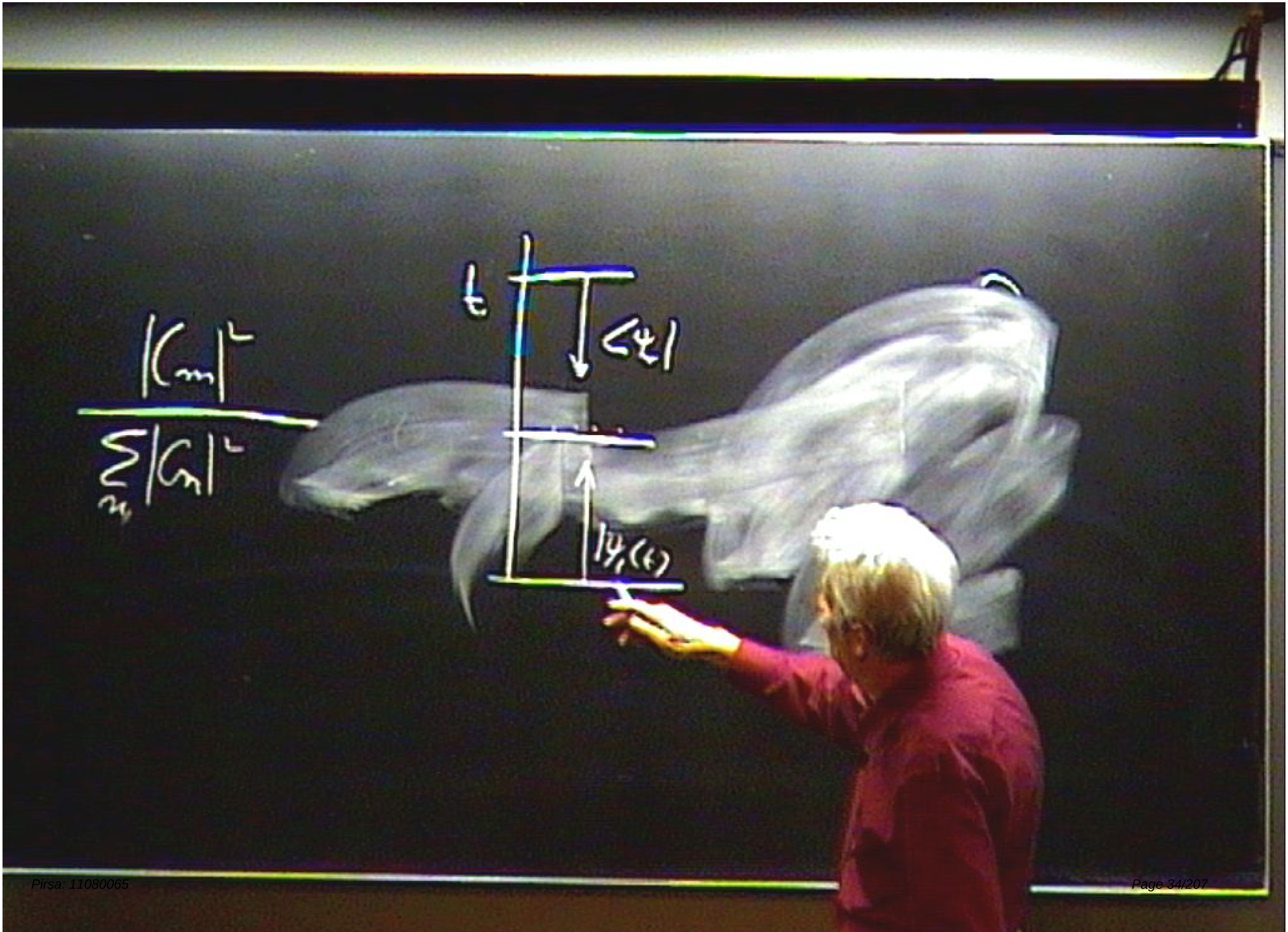
$$\langle U^{\dagger}_{t t_2} \psi_2 | \alpha_m \rangle \langle \alpha_m | U_{t t_1} | \psi_1 \rangle$$

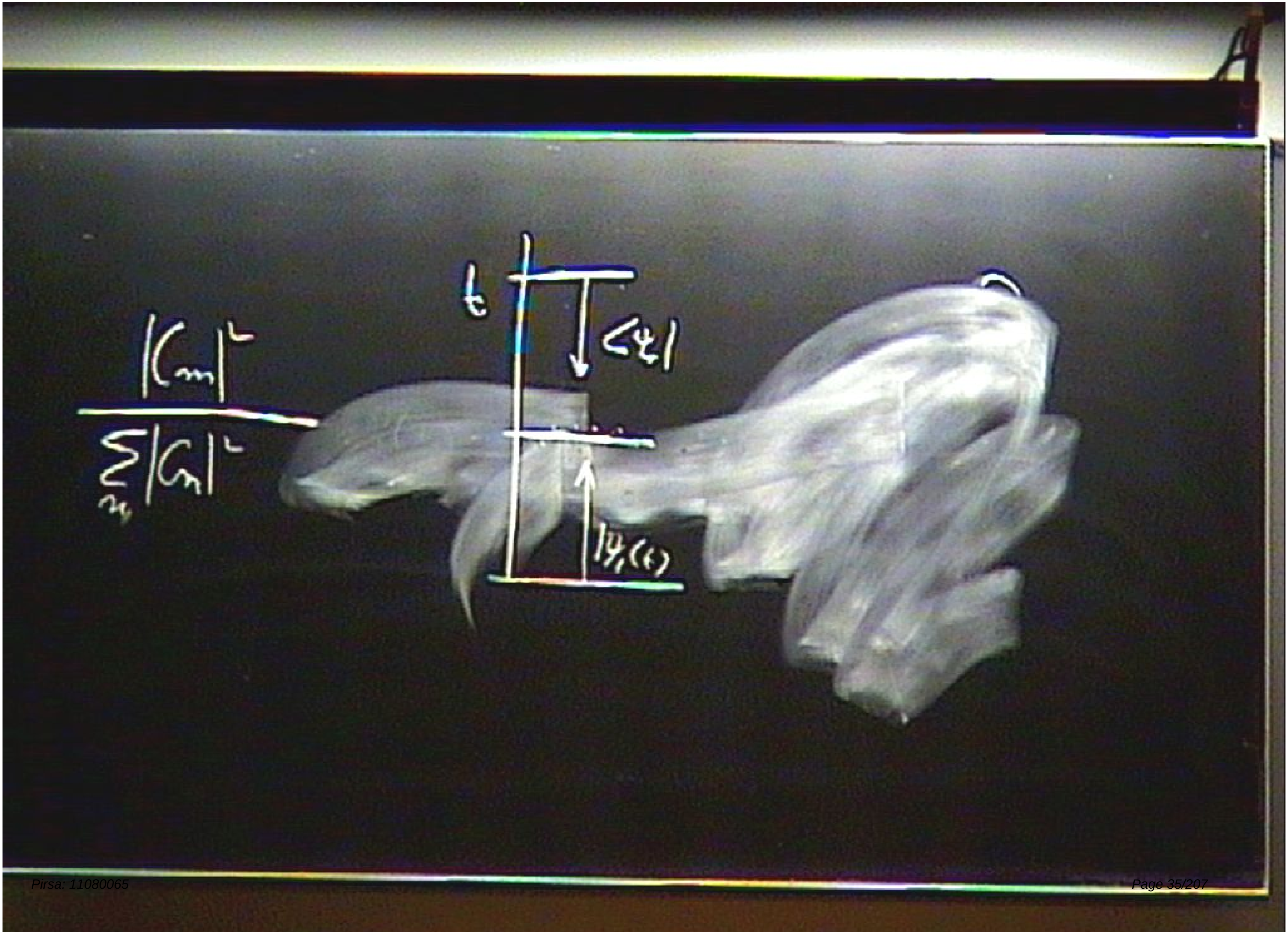

t

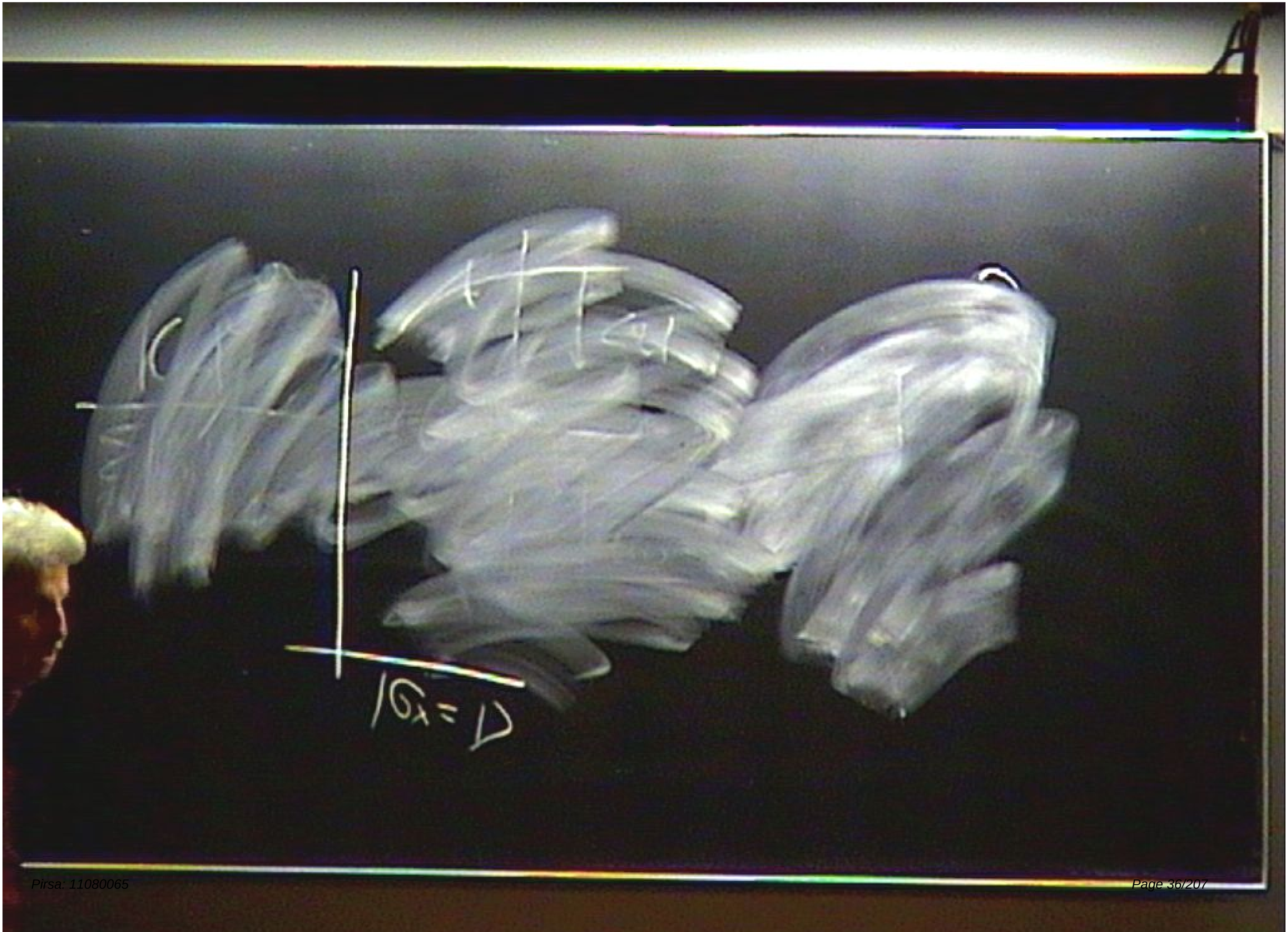

$\frac{|C_m|^2}{\sum_m |C_m|^2}$
t
$\langle\Psi|$
$|\psi_i(t)\rangle$

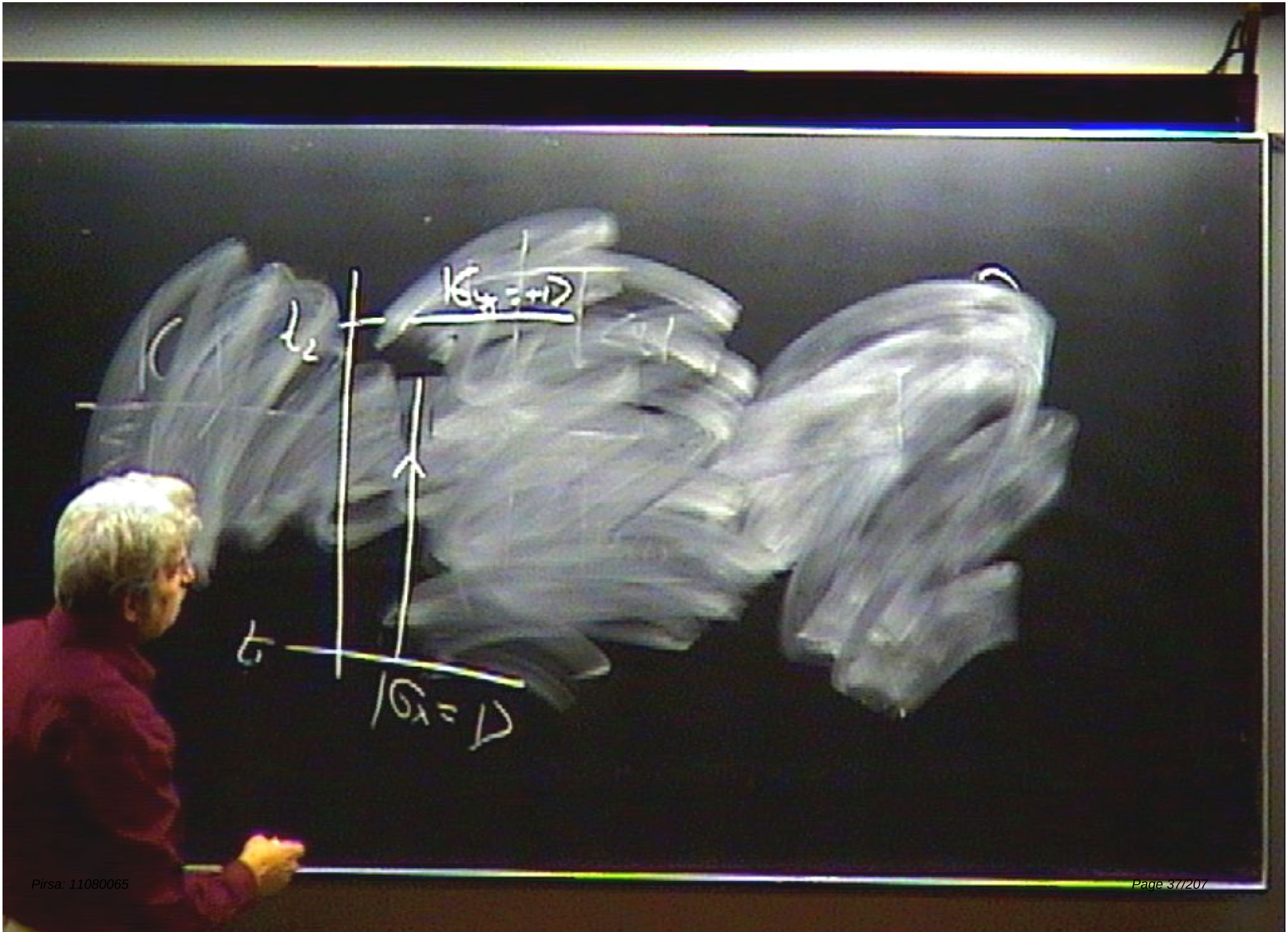

t
⟨ψ|
|ψ,(t)⟩

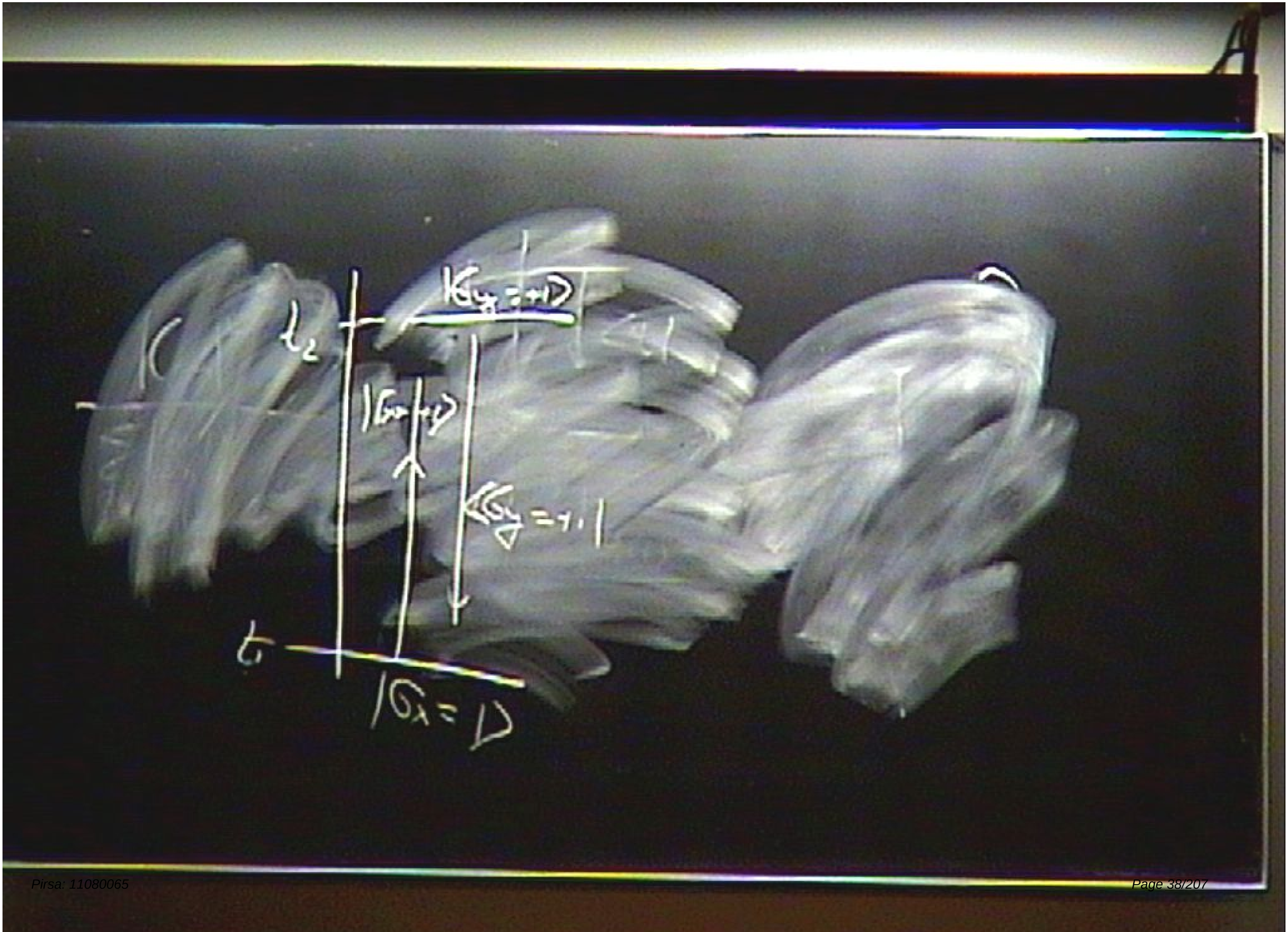

$\frac{|C_m|^2}{\sum_m |C_m|^2}$
t
$\langle\psi_2|$
$|\psi_1(t)\rangle$



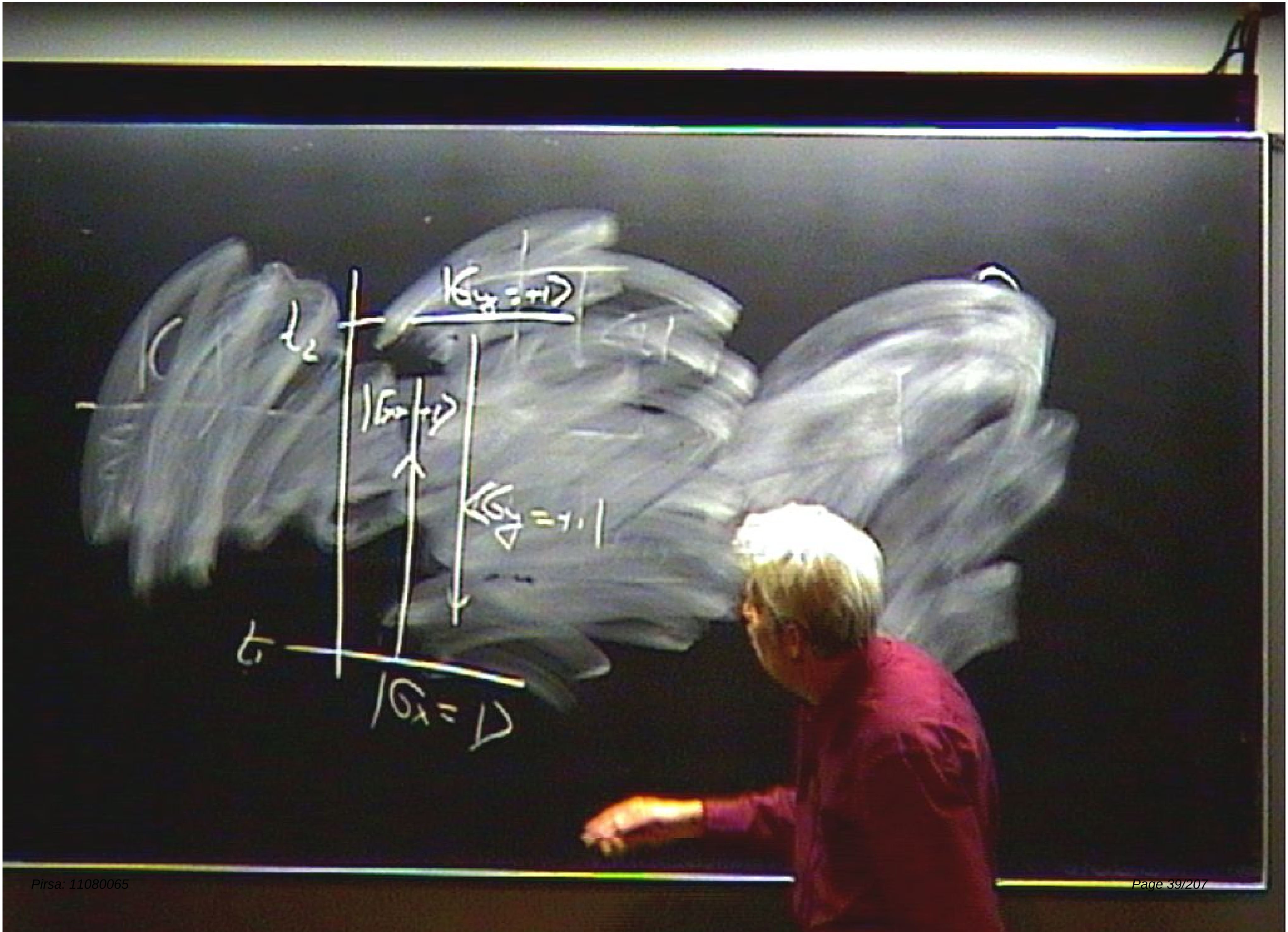

|C_m|^2 / Σ_m |C_m|^2
t
⟨ψ_f|
|ψ_i(t)⟩

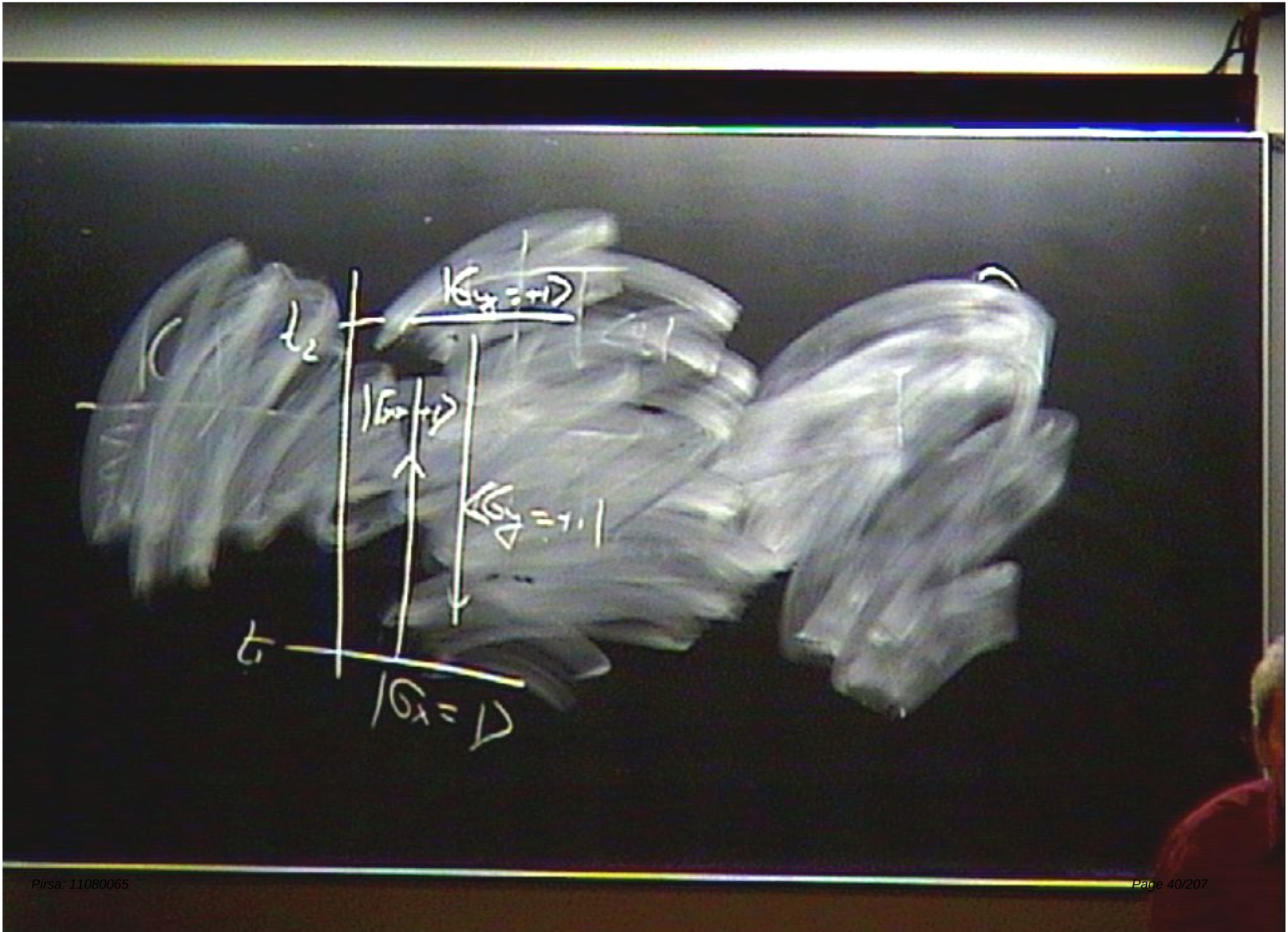


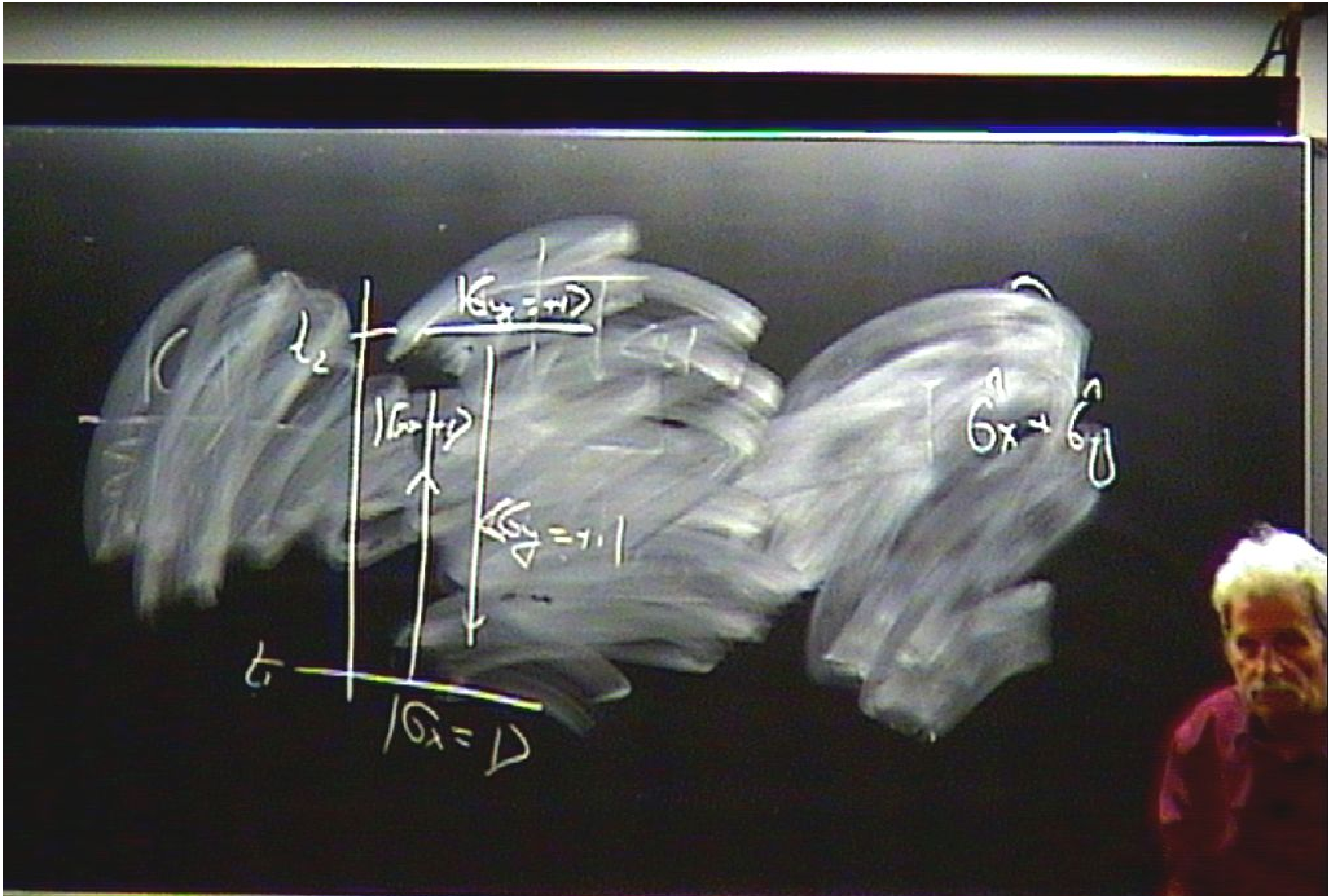


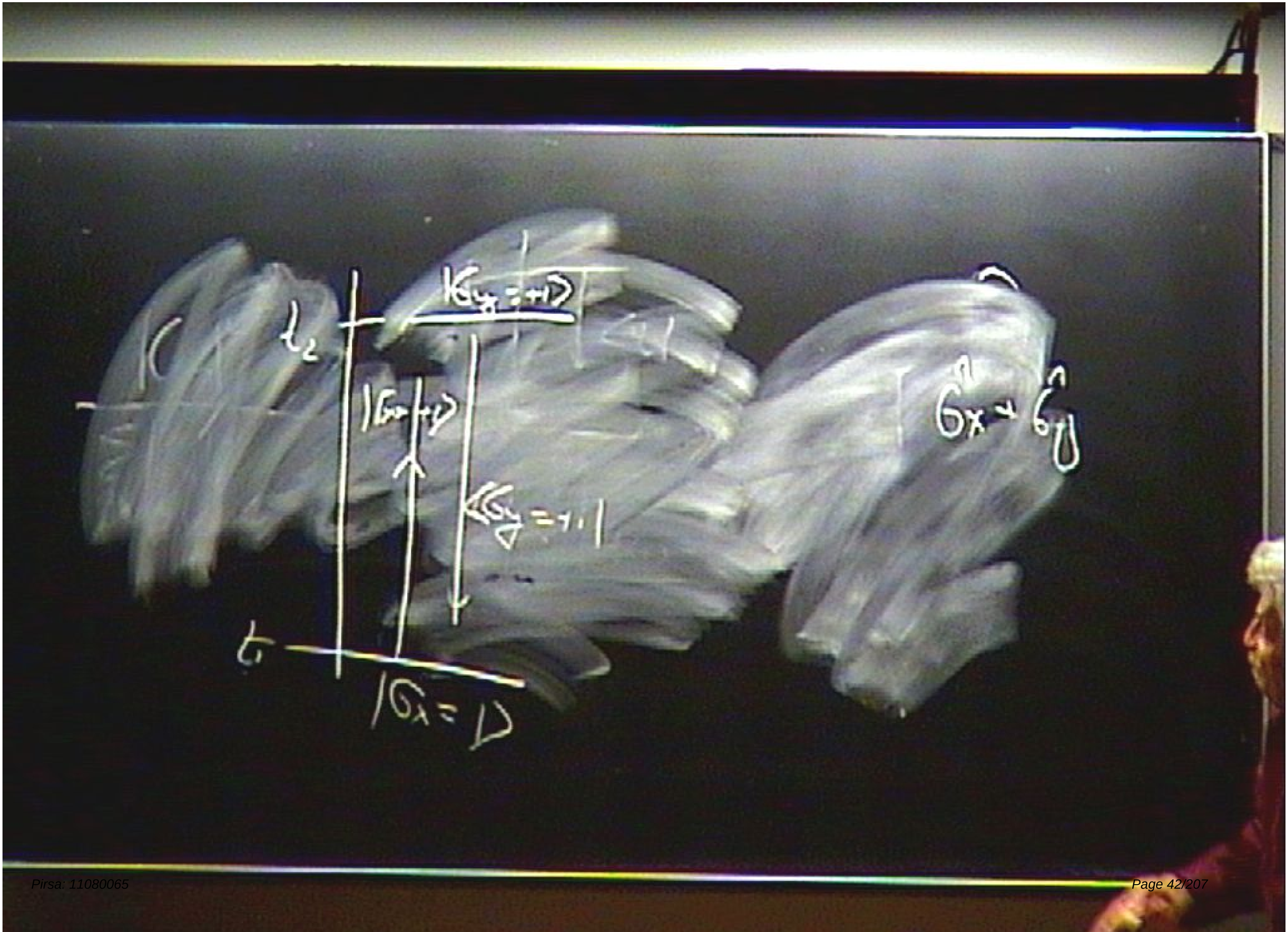


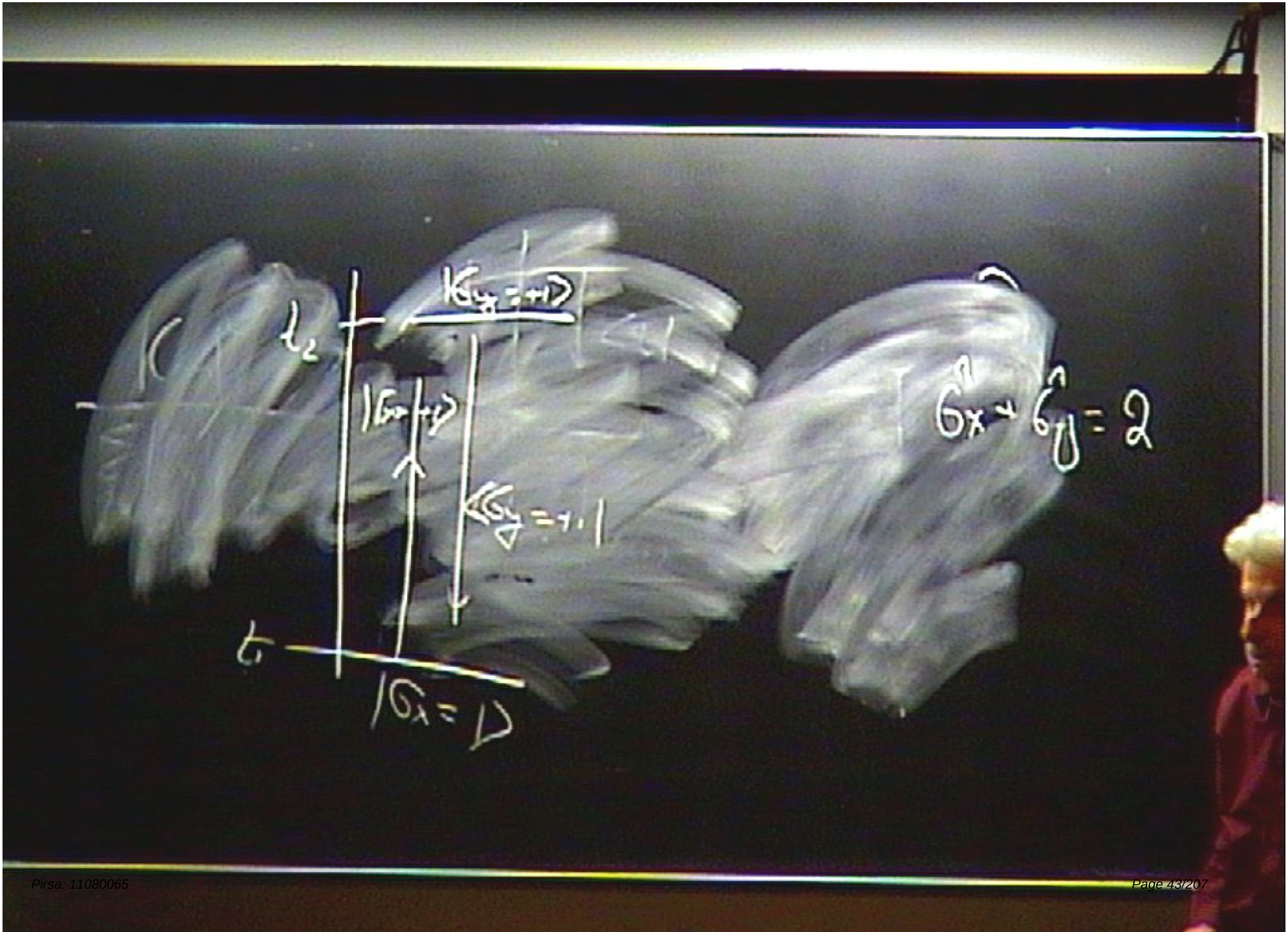
t2
|σy = +1⟩
|σx = +1⟩
⟨σy = +1|
t1
|σx = 1⟩

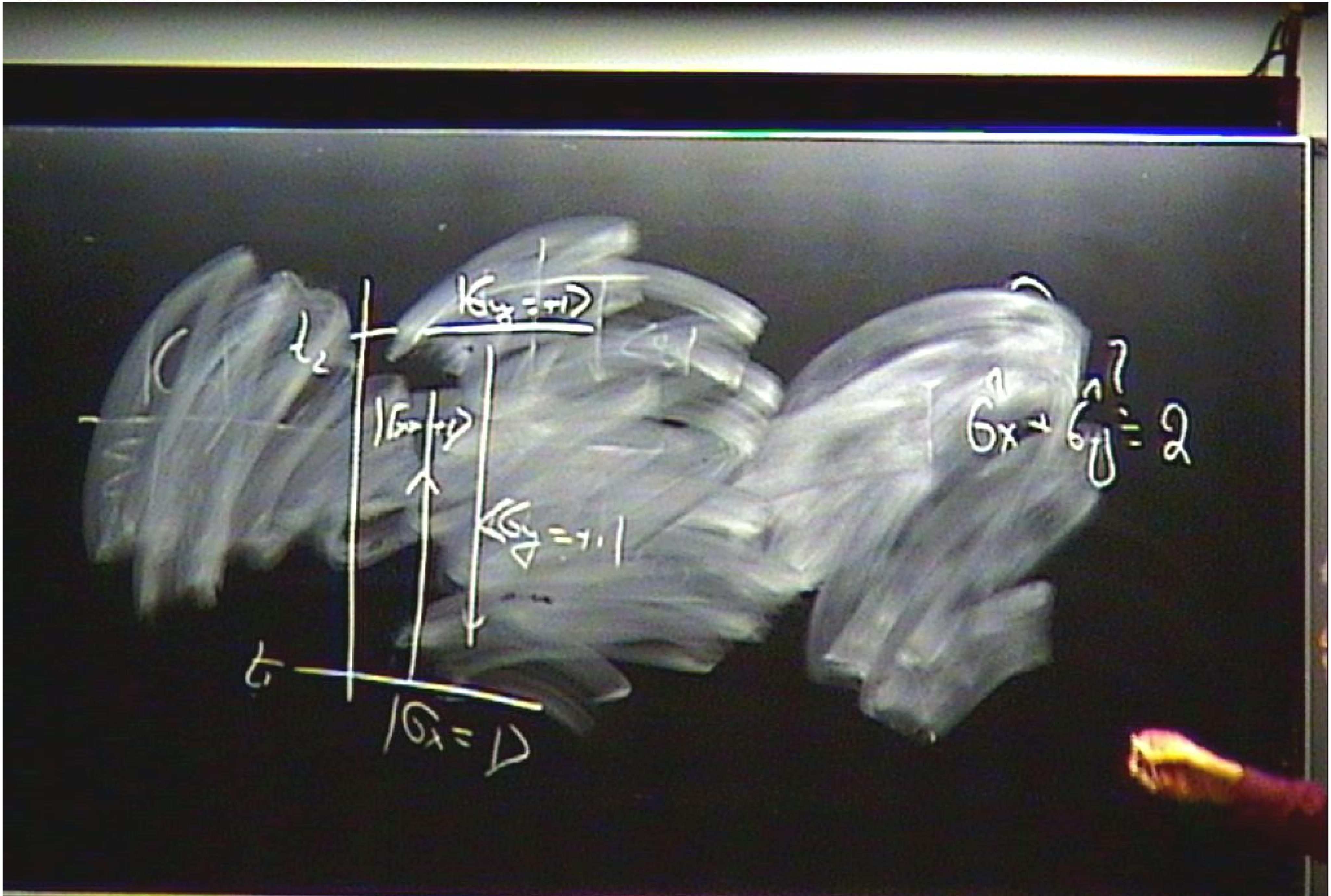

t2
|σy = +1>
|σx = +1>
<σy = +1|
t1
|σx = 1>

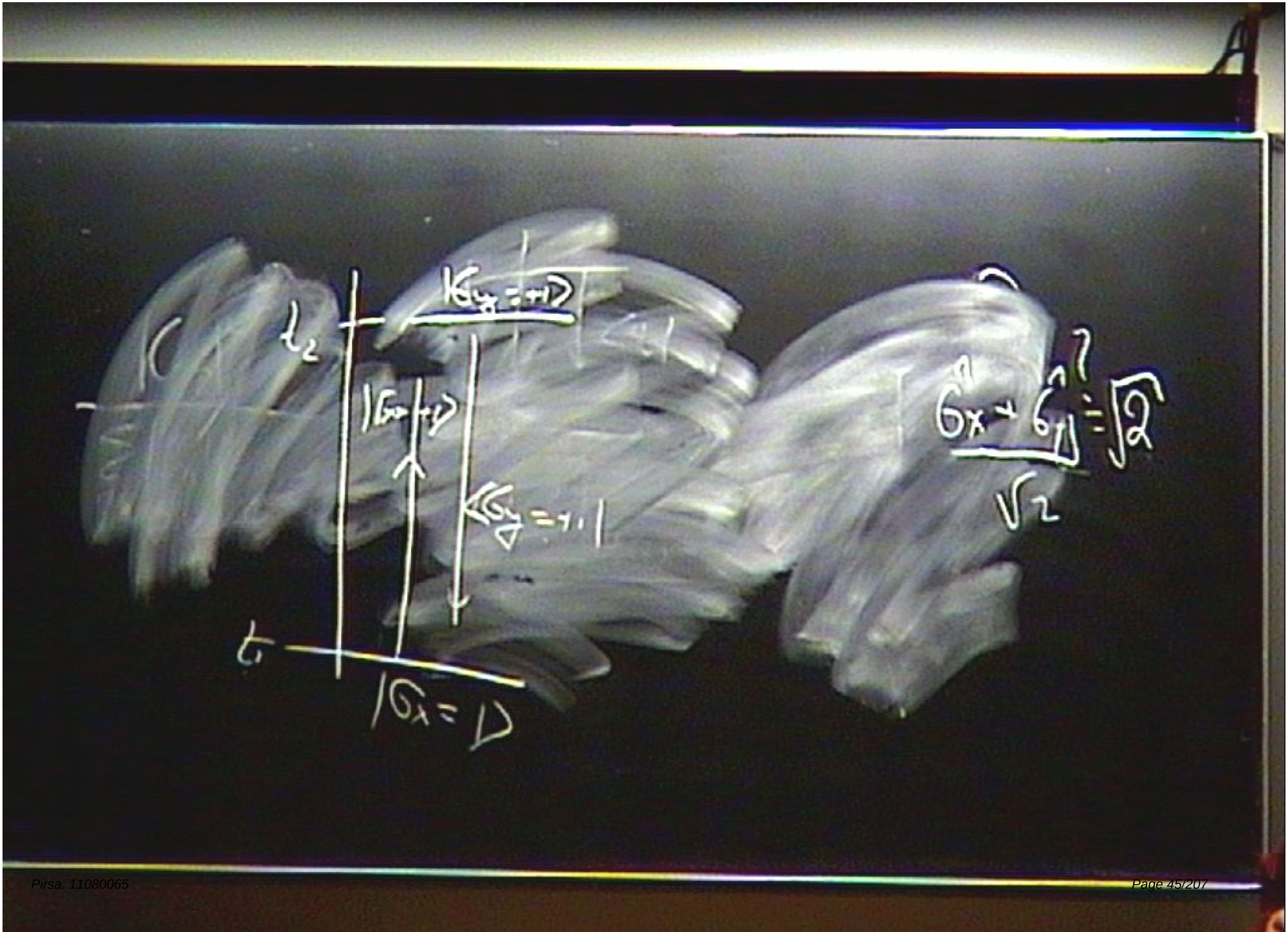

t2
t1
|σy = +1⟩
|σx = +1⟩
⟨σy = +1|

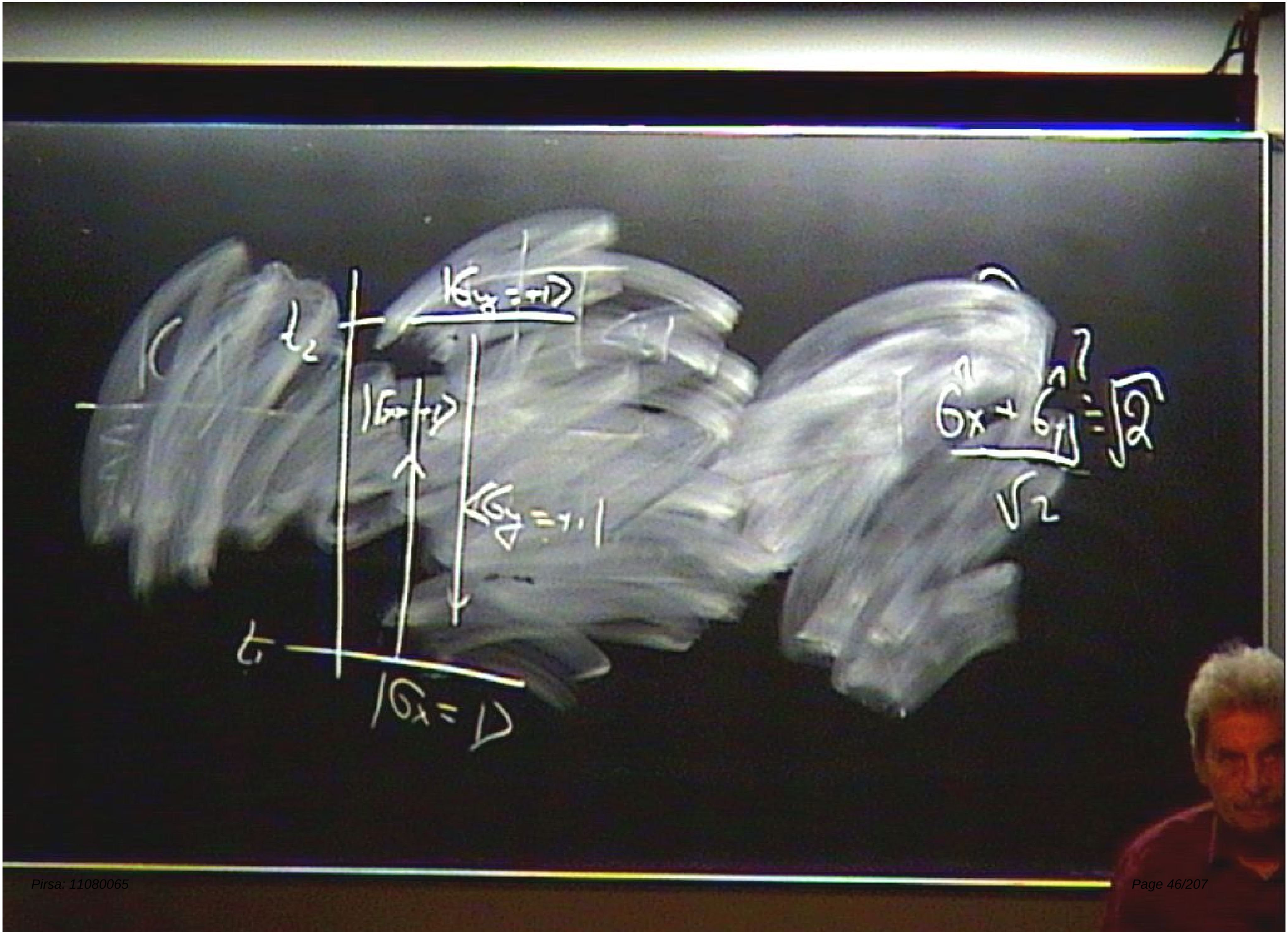

t_2
t_1


|σy=+1⟩
t2
|σx=+1⟩
⟨σy=+1|
t1
|σx=1⟩
σ̂x → σ̂y

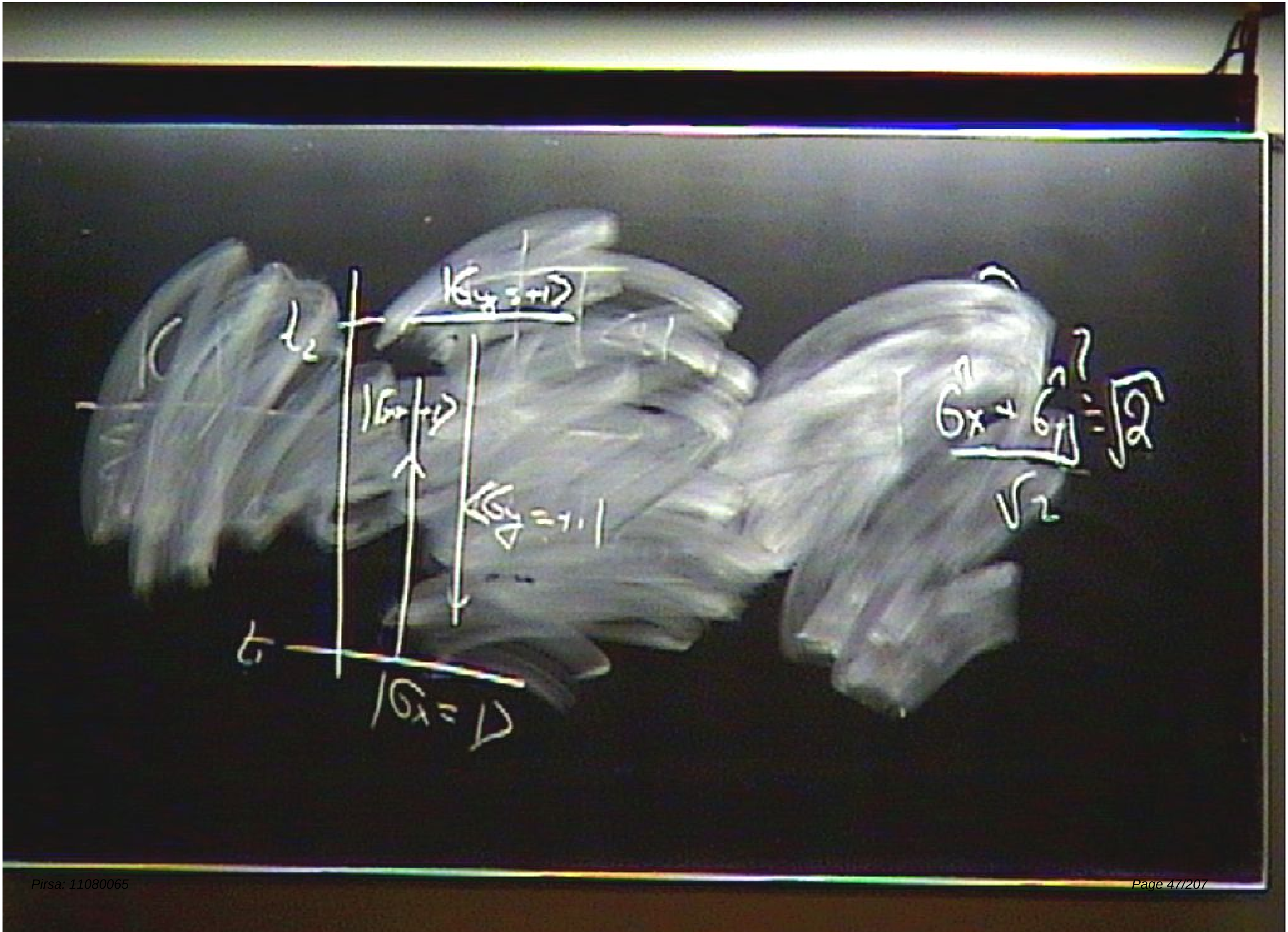

$\hat{\sigma}_x + \hat{\sigma}_y = 2$

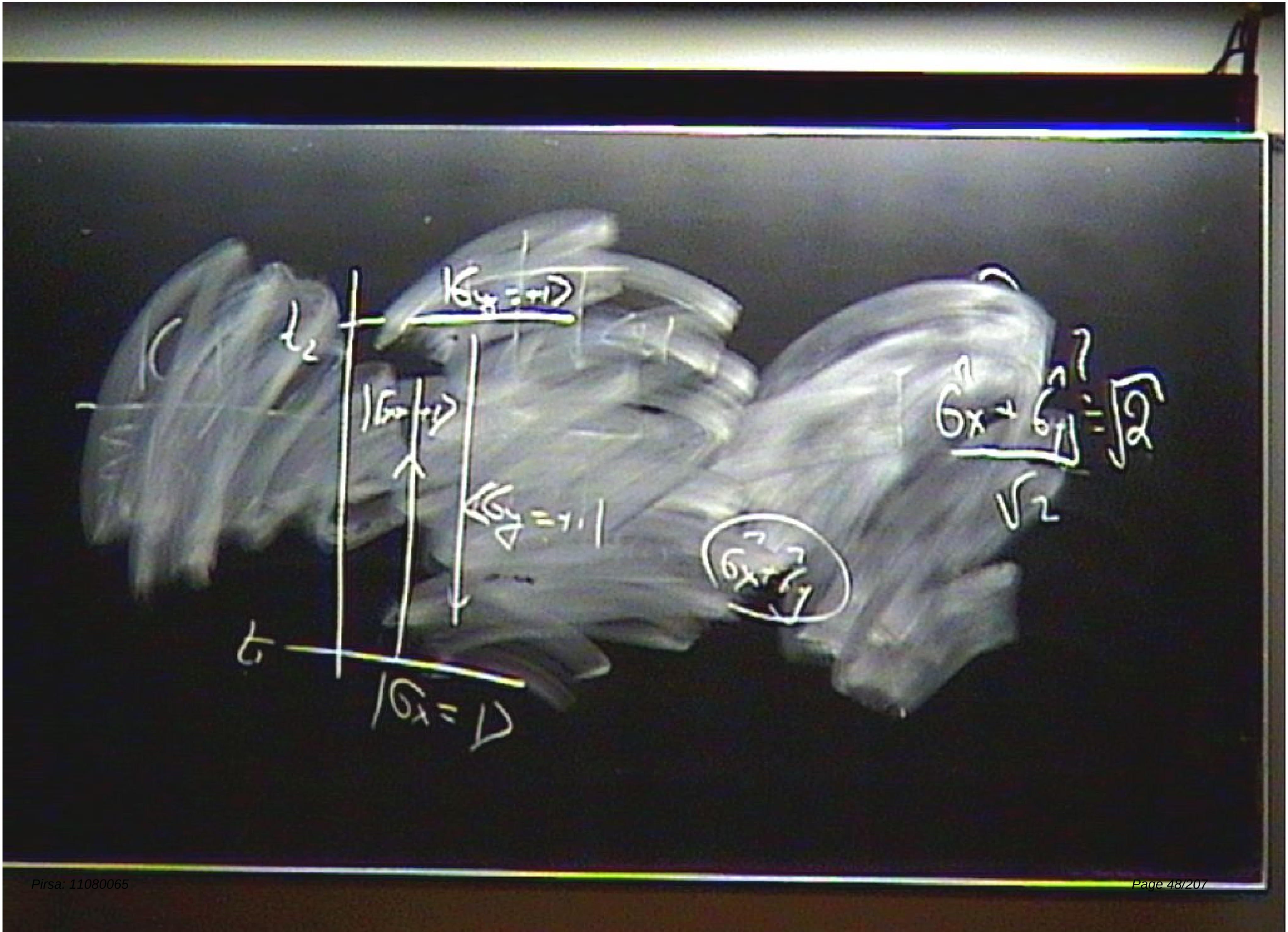

t_2
$|\sigma_y = +1\rangle$
$|\sigma_x = +1\rangle$
$\langle \sigma_y = +1|$
t_1
$|\sigma_x = 1\rangle$
$\hat{\sigma}_x + \hat{\sigma}_y \overset{?}{=} 2$


t₂
|σy = +1⟩
|σx = +1⟩
⟨σy = +1|
t₁
|σx = 1⟩
σx + σy
√2

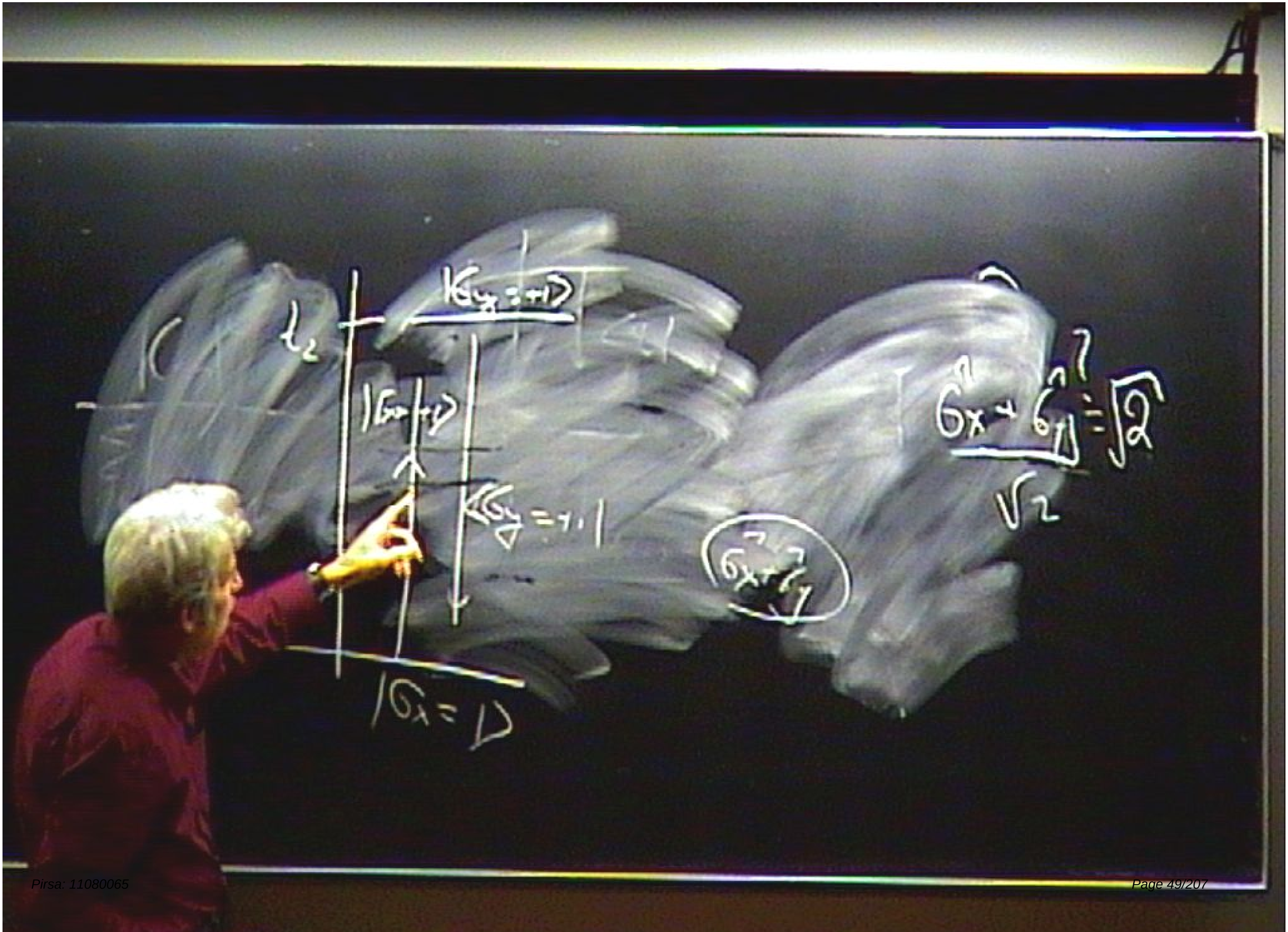


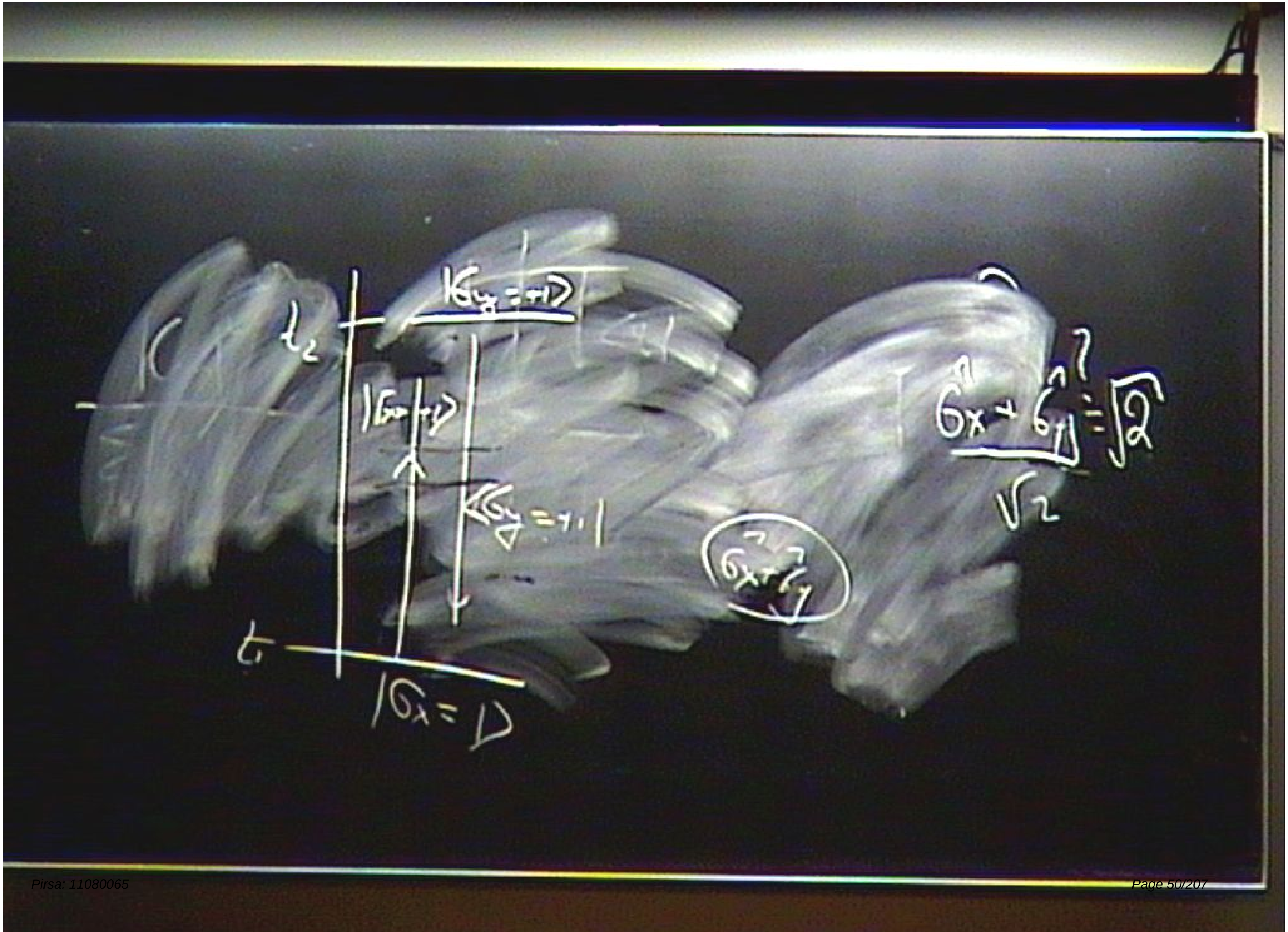
t₂
|σ_y = +1⟩
|σ_x = +1⟩
⟨σ_y = +1|
t₁
|σ_x = 1⟩
(σ̂_x + σ̂_y)/√2 = √2 ?


|σy=+1⟩
t2
|σx=+1⟩
⟨σy=+1|
t1
|σx=+1⟩
σx+σy
√2

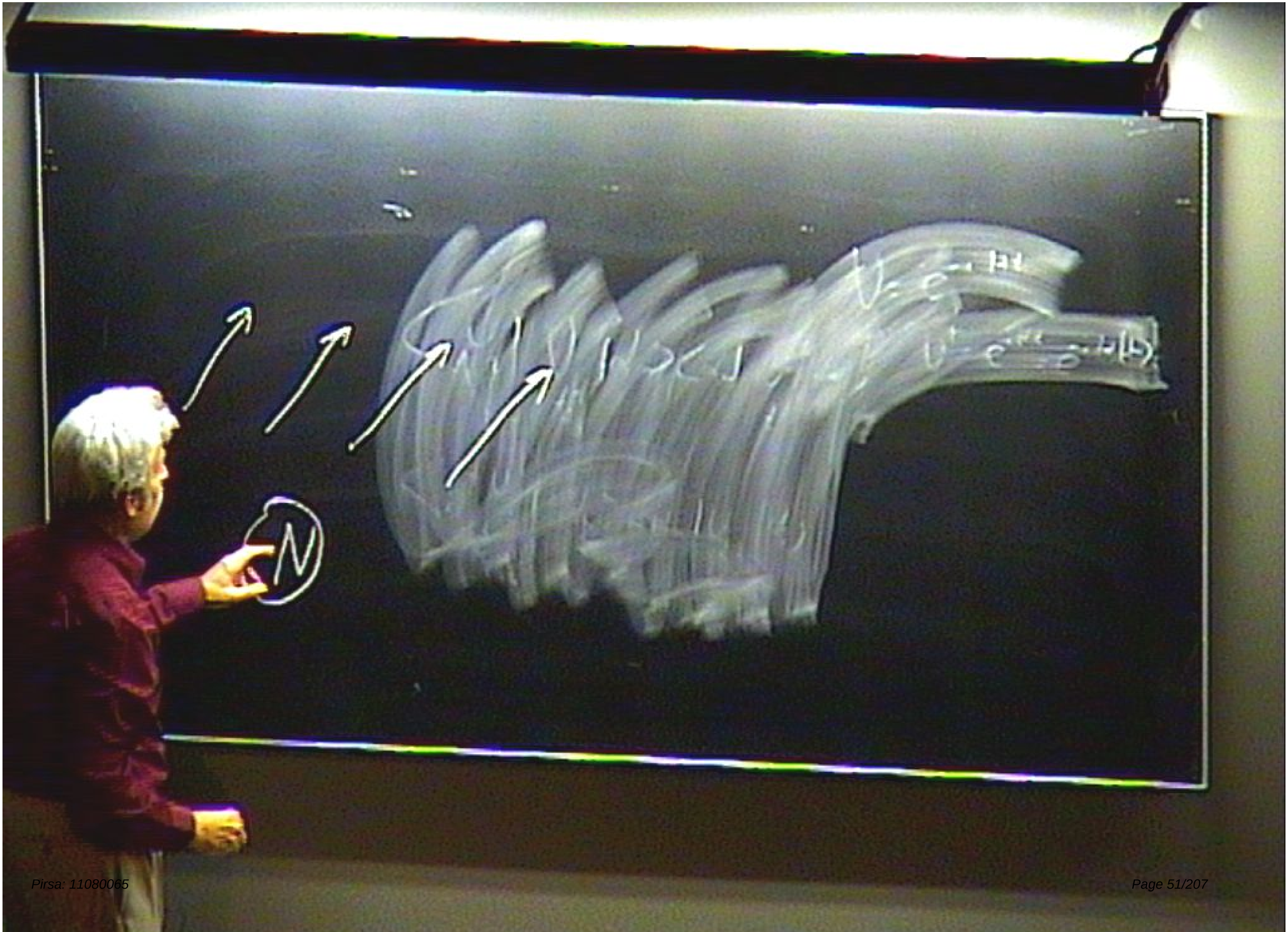


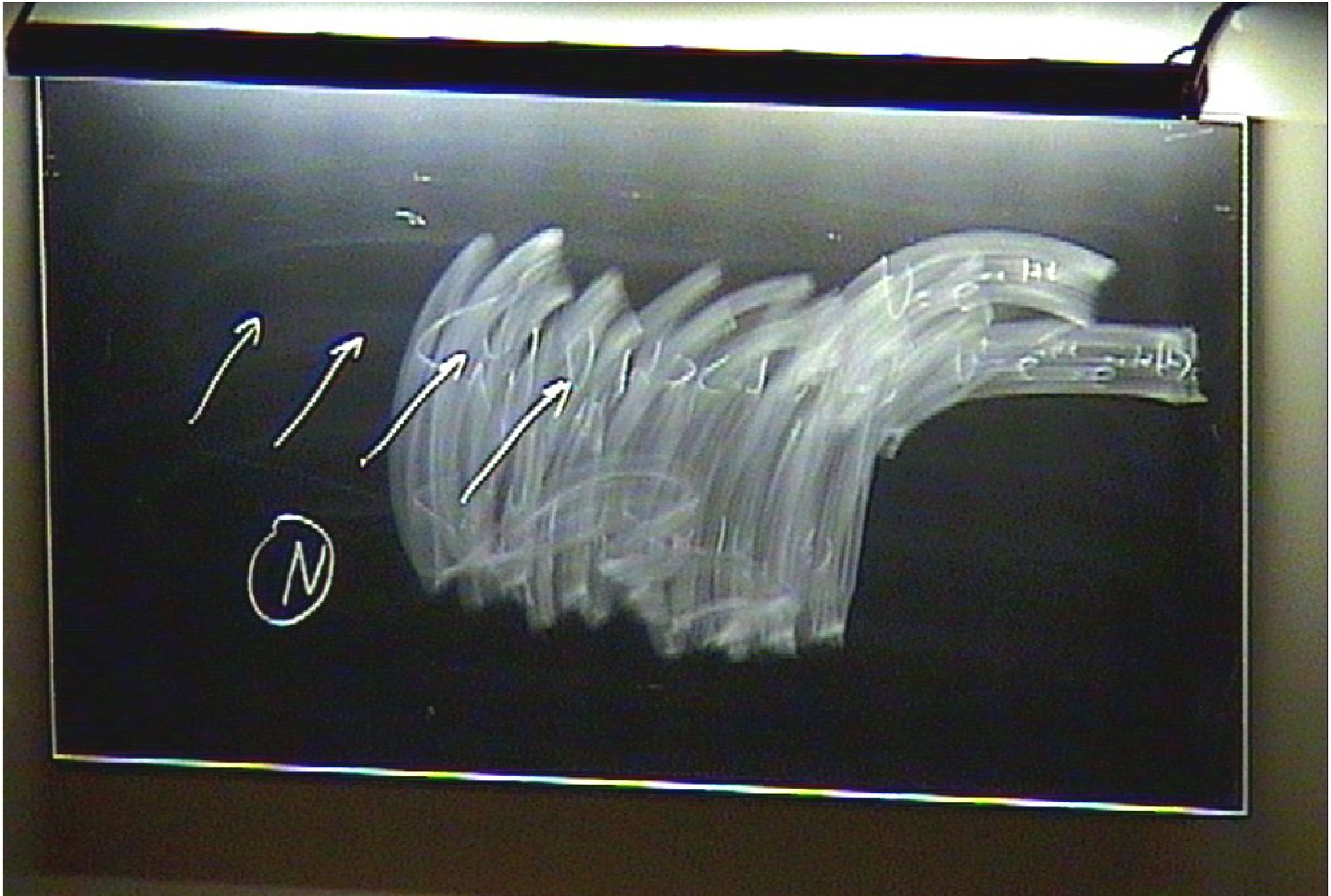
|σy = +1⟩
t2
|σx = +1⟩
⟨σy = +1|
t1
|σx = 1⟩
σx + σy
√2
= √2
σx + σy

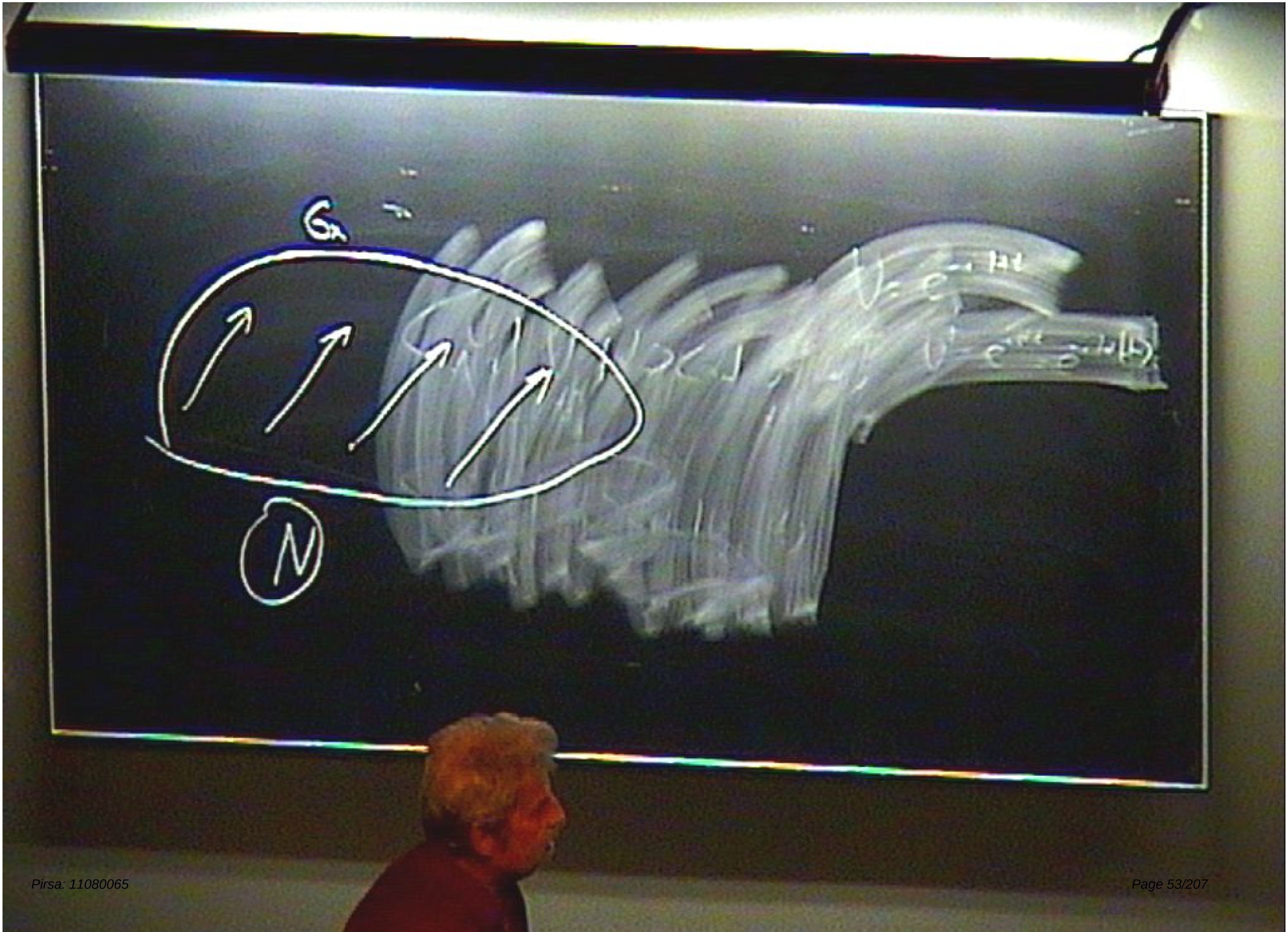




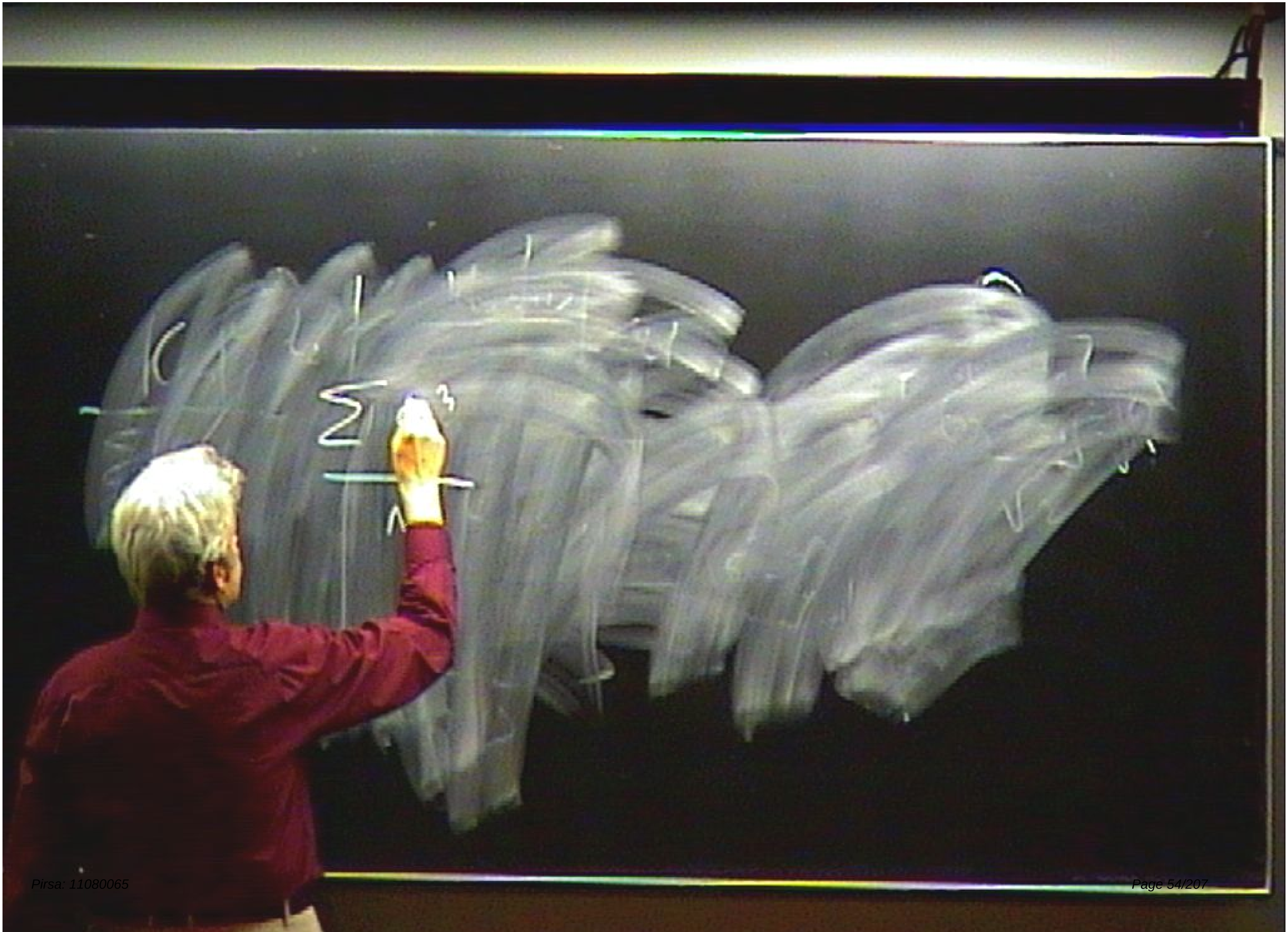
t2
t1
|σx = 1⟩
|σy = +1⟩
σx + σy ≐ √2
√2

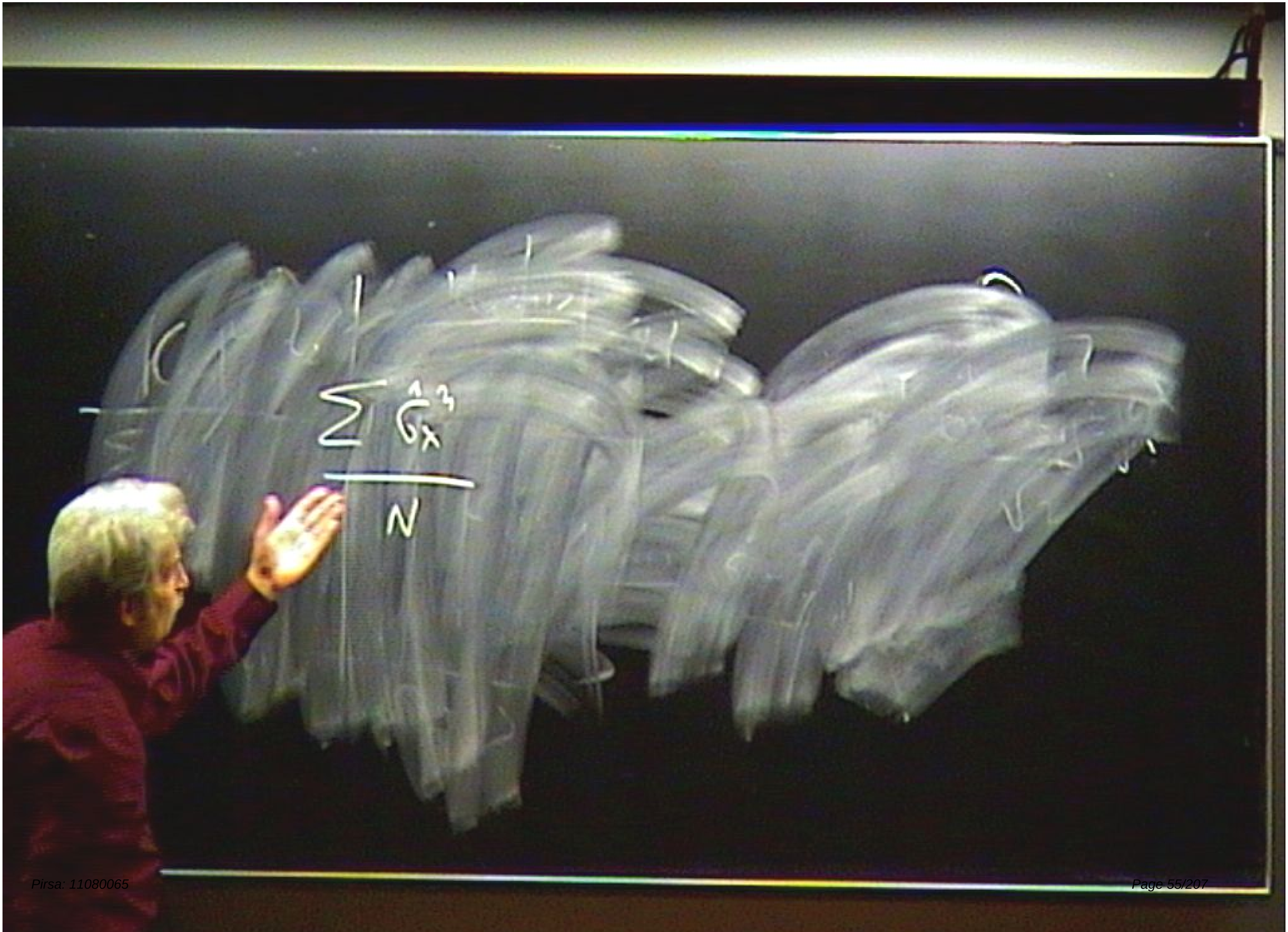

N

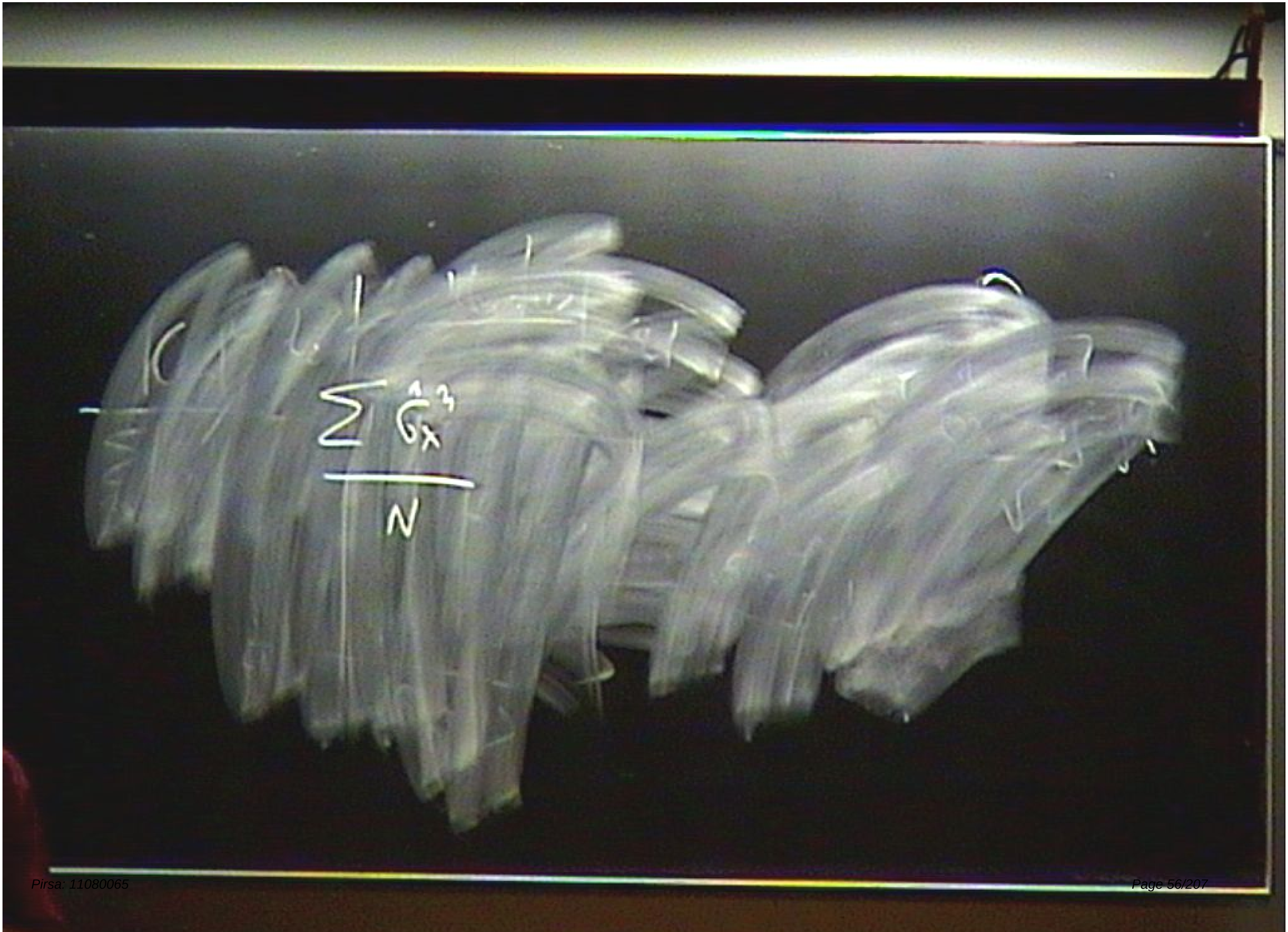

N

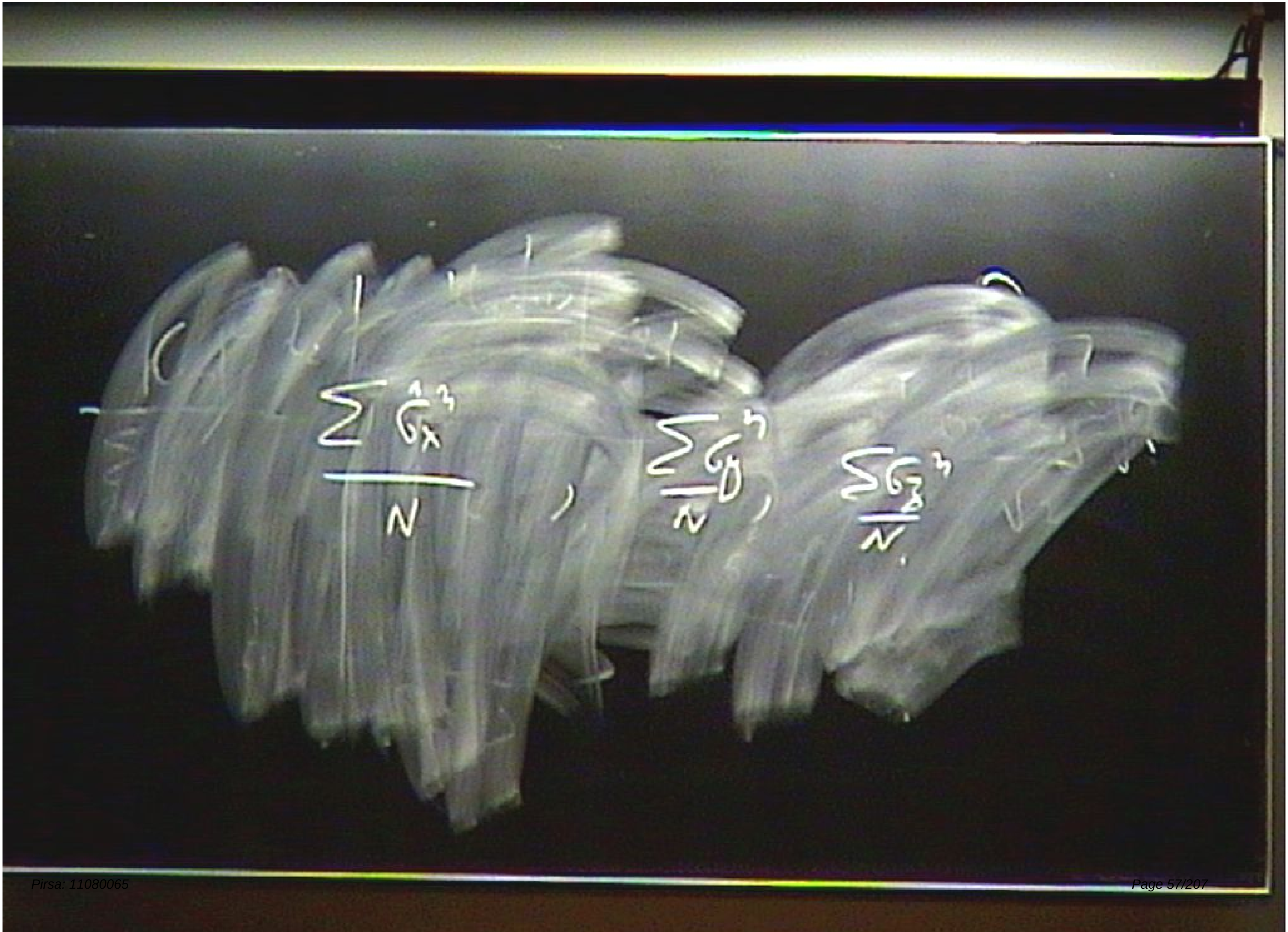


G
N

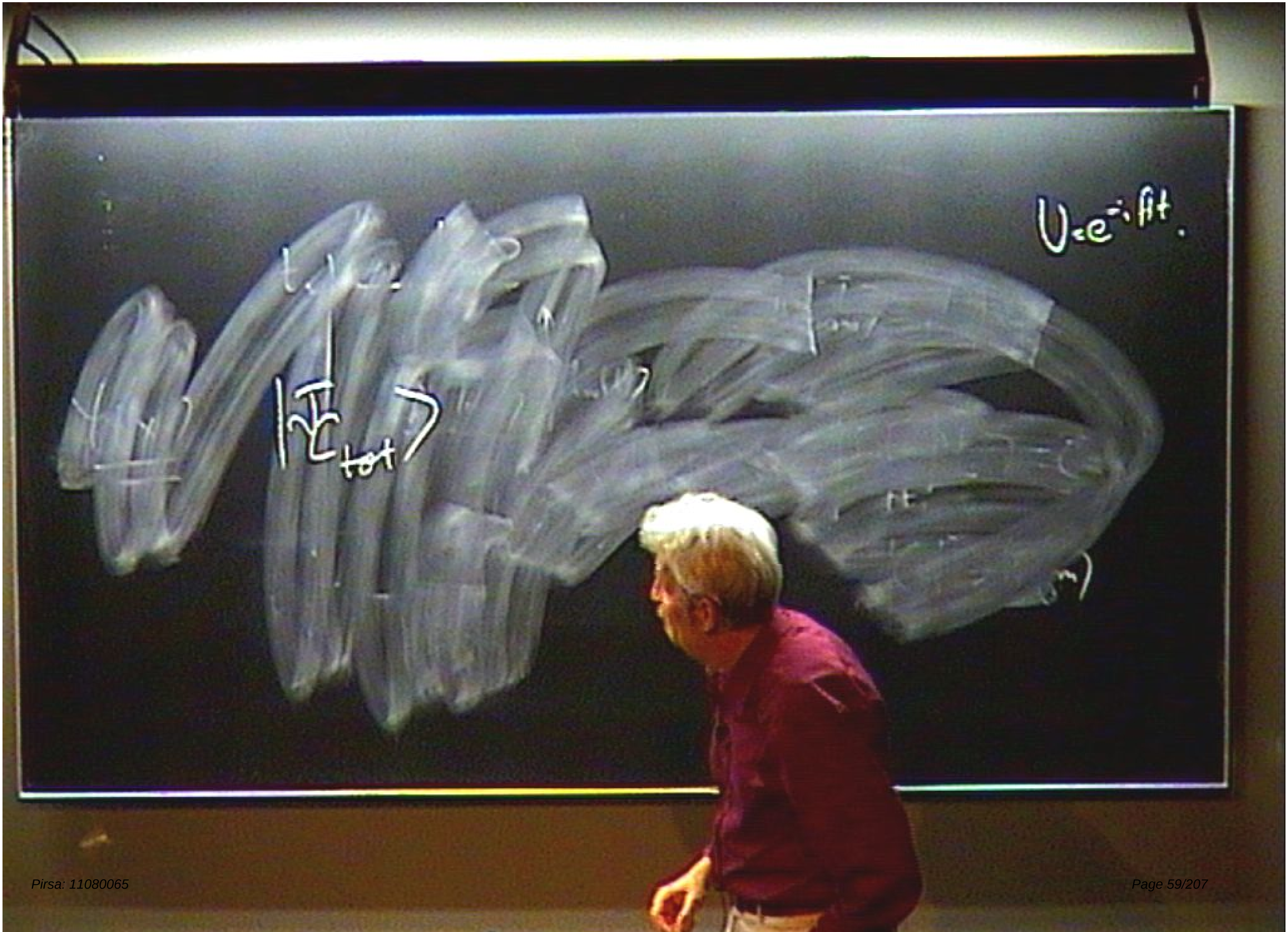


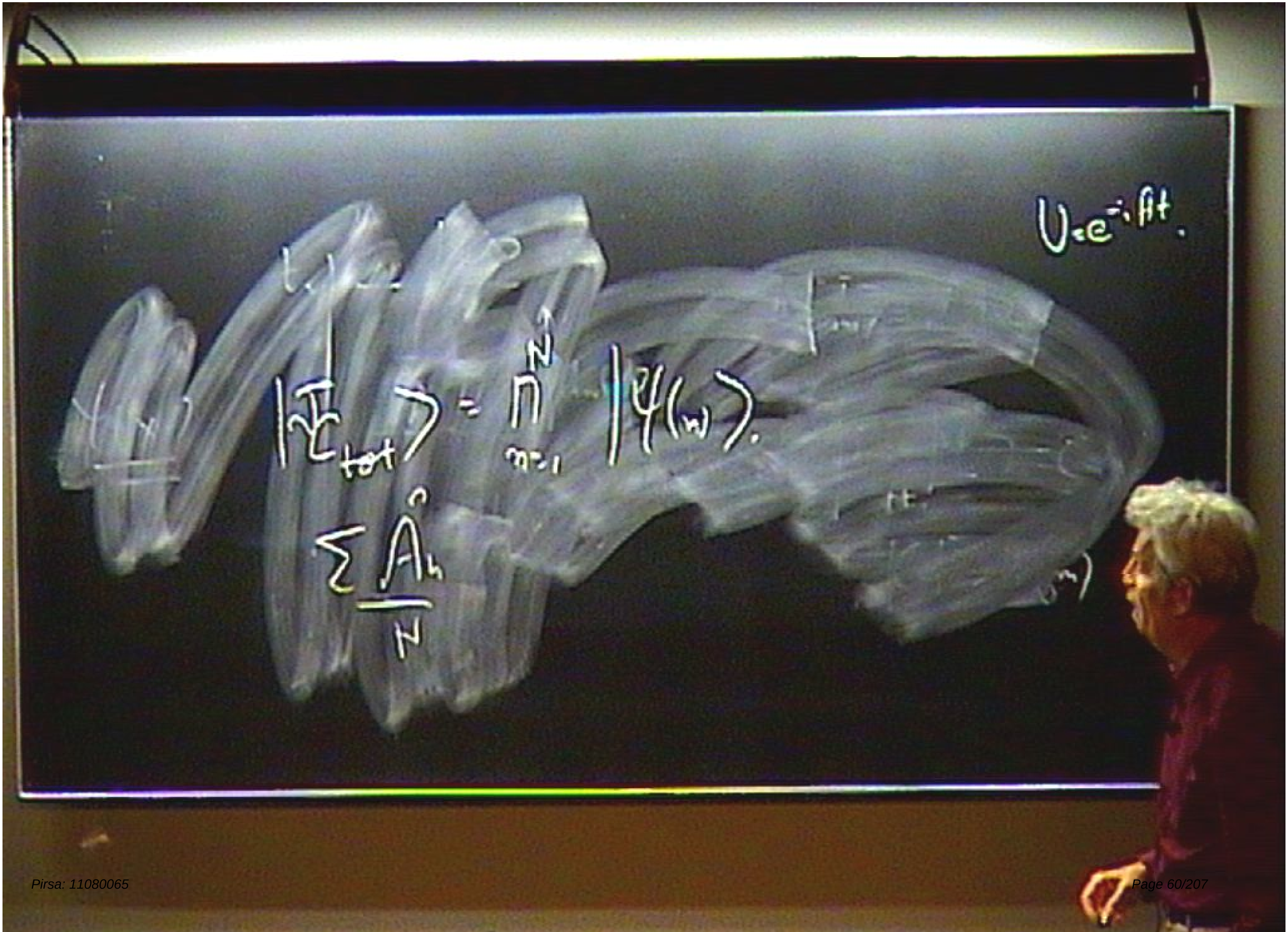

$\frac{\sum \hat{\sigma}_x^3}{N}$

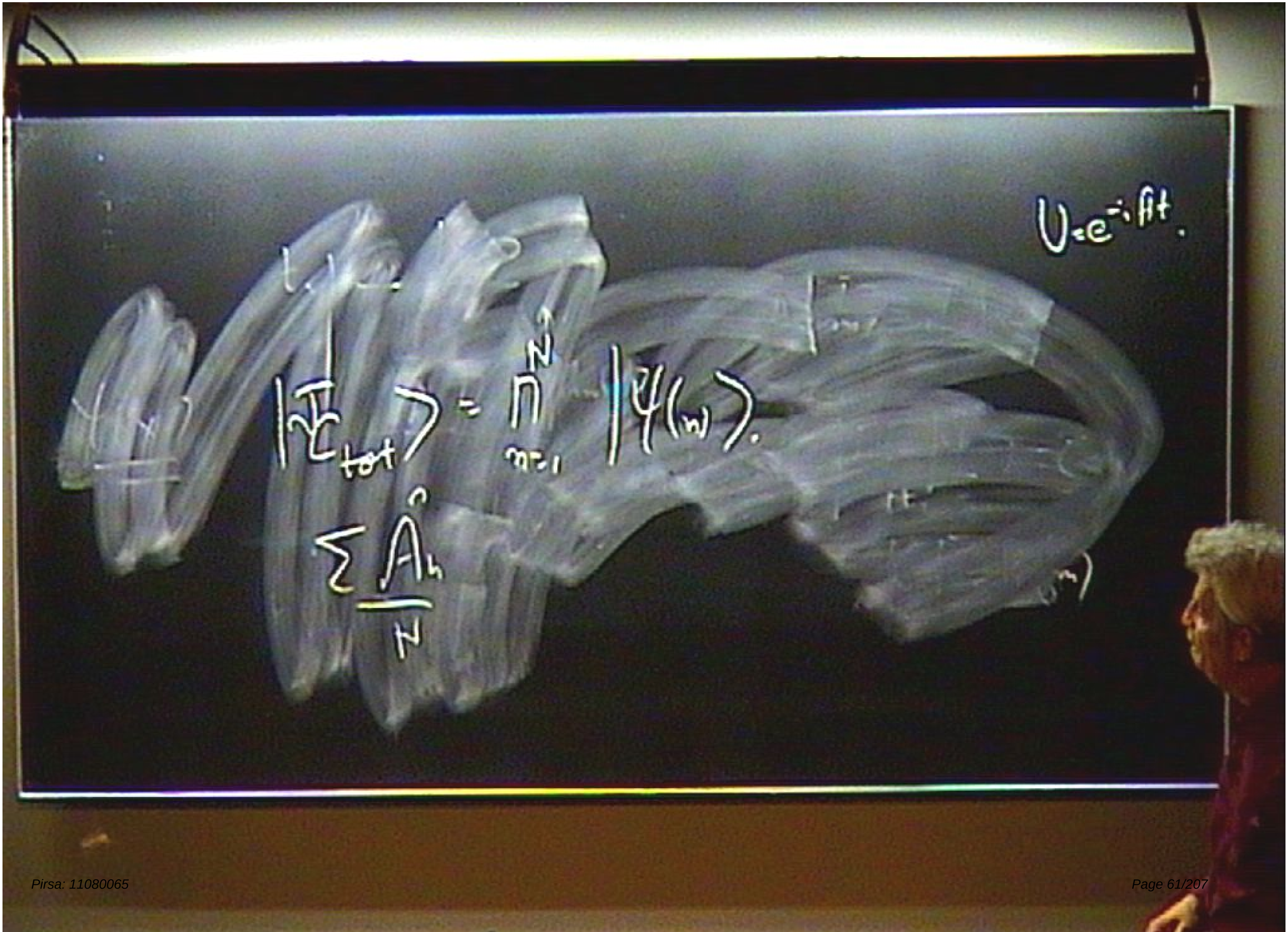

$\sum \hat{\sigma}_x^3$
N

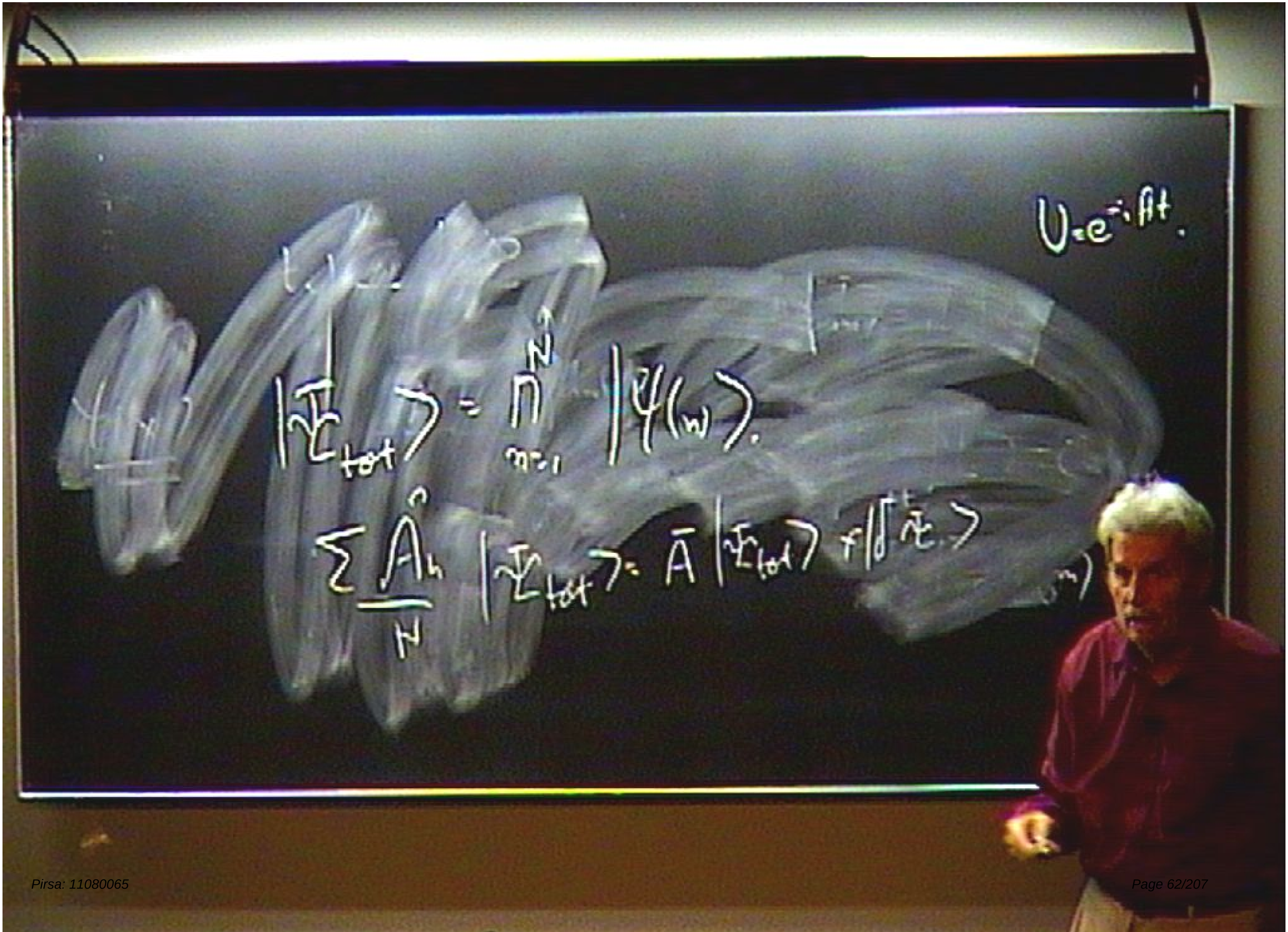

$\frac{\sum \sigma_x^2}{N}$,
$\frac{\sum \sigma_y^2}{N}$,
$\frac{\sum \sigma_z^2}{N}$.

$$\frac{\sum \sigma_x^3}{N}, \quad \frac{\sum \sigma_y^3}{N}, \quad \frac{\sum \sigma_z^3}{N}.$$

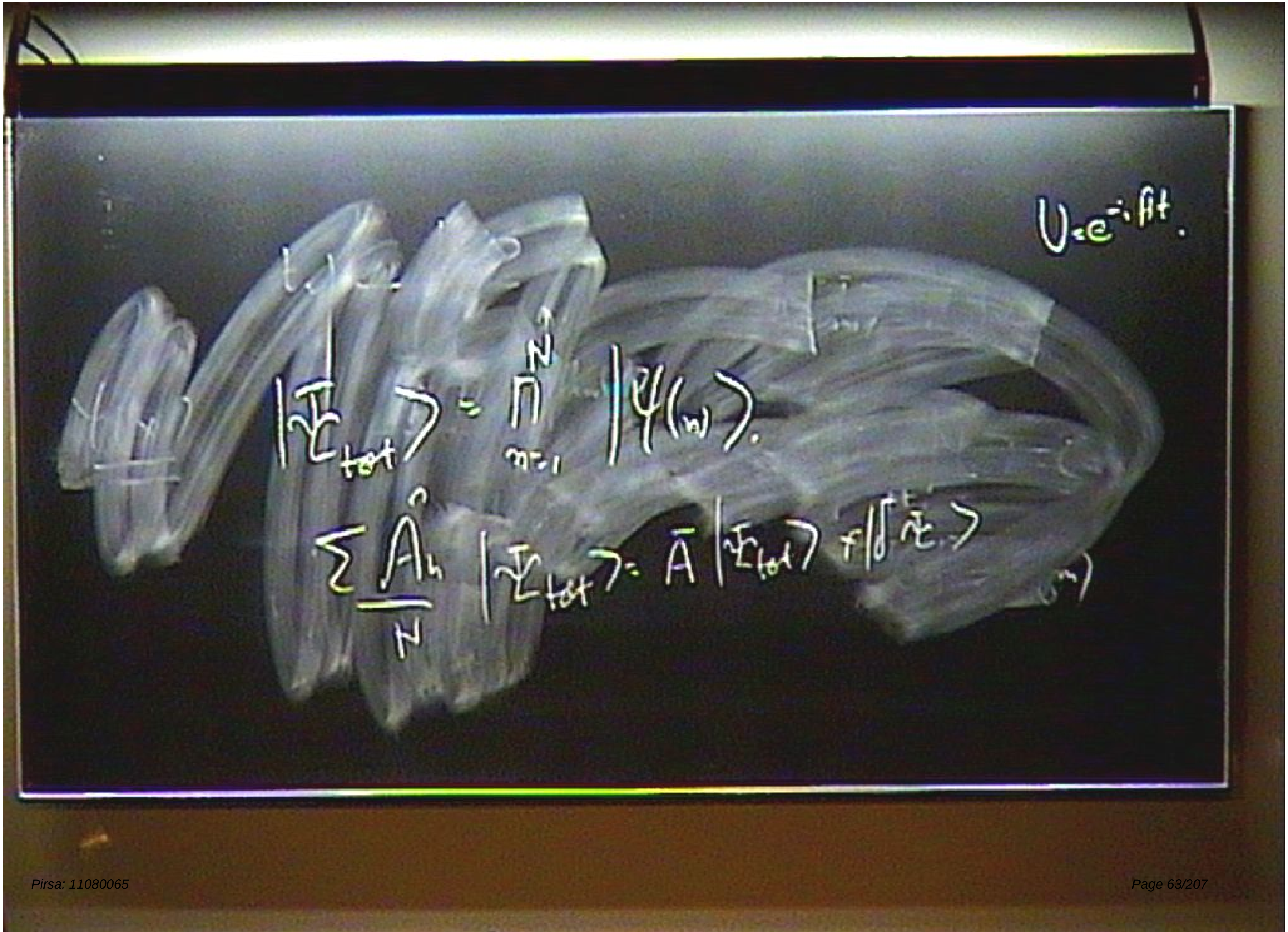

U=e-iHt.
|Ψtot⟩

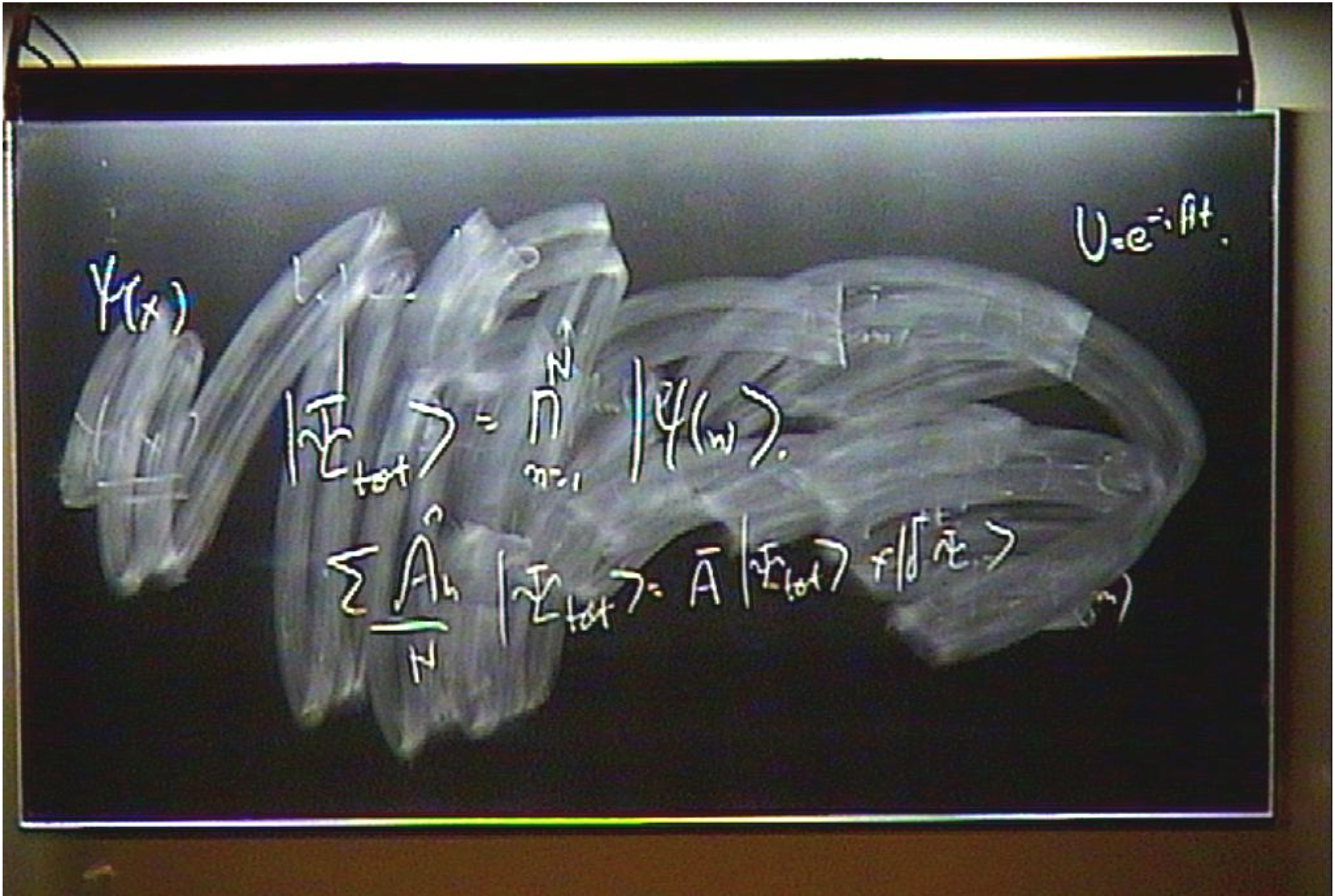

U=e^{-iĤt}.
|Ψ_tot⟩ = ∏_{n=1}^{N} |ψ(n)⟩.
Σ Â_n / N


U=e^{-iĤt}.
|Ψ_tot⟩ = ∏_{n=1}^{N} |ψ(n)⟩.
Σ Â_n / N



$U = e^{-i\hat{H}t}$.
$|\Psi_{tot}\rangle = \prod_{n=1}^{N} |\psi(n)\rangle$.
$\sum \frac{\hat{A}_n}{N} |\Psi_{tot}\rangle = \bar{A} |\Psi_{tot}\rangle + |\delta\Psi\rangle$


U = e^{-iHt}.
|Ψ_tot> = ∏_{n=1}^{N} |ψ(n)>.
Σ Â_n / N |Ψ_tot> = Ā |Ψ_tot> + |δΨ_tot>

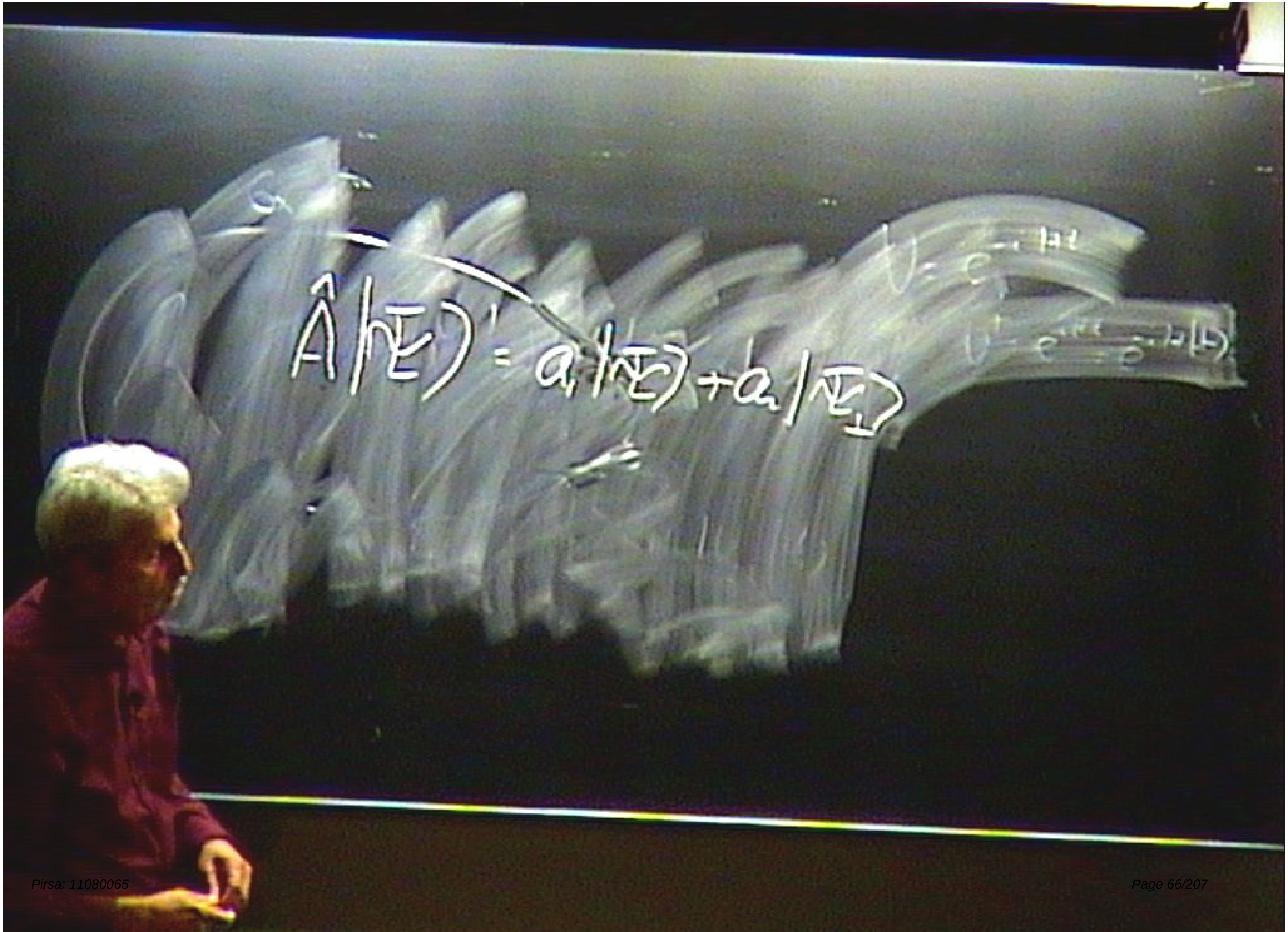

Ψ(x)
U=e^{-iĤt}.
|Ψ_tot> = ∏_{n=1}^{N} |ψ(n)>.
Σ Â_n / N |Ψ_tot> = Ā |Ψ_tot> + |δΨ>

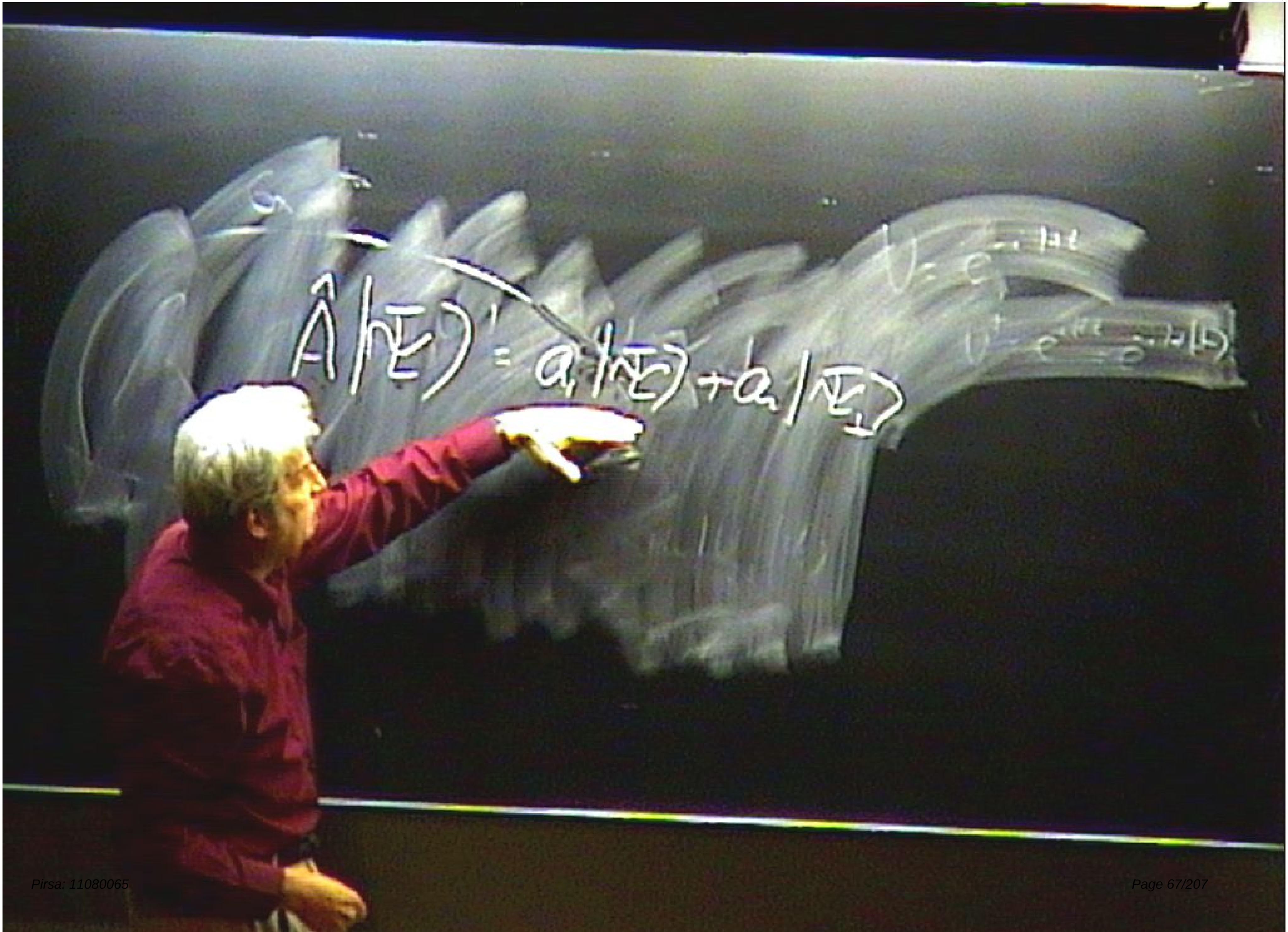
$\psi(x)$

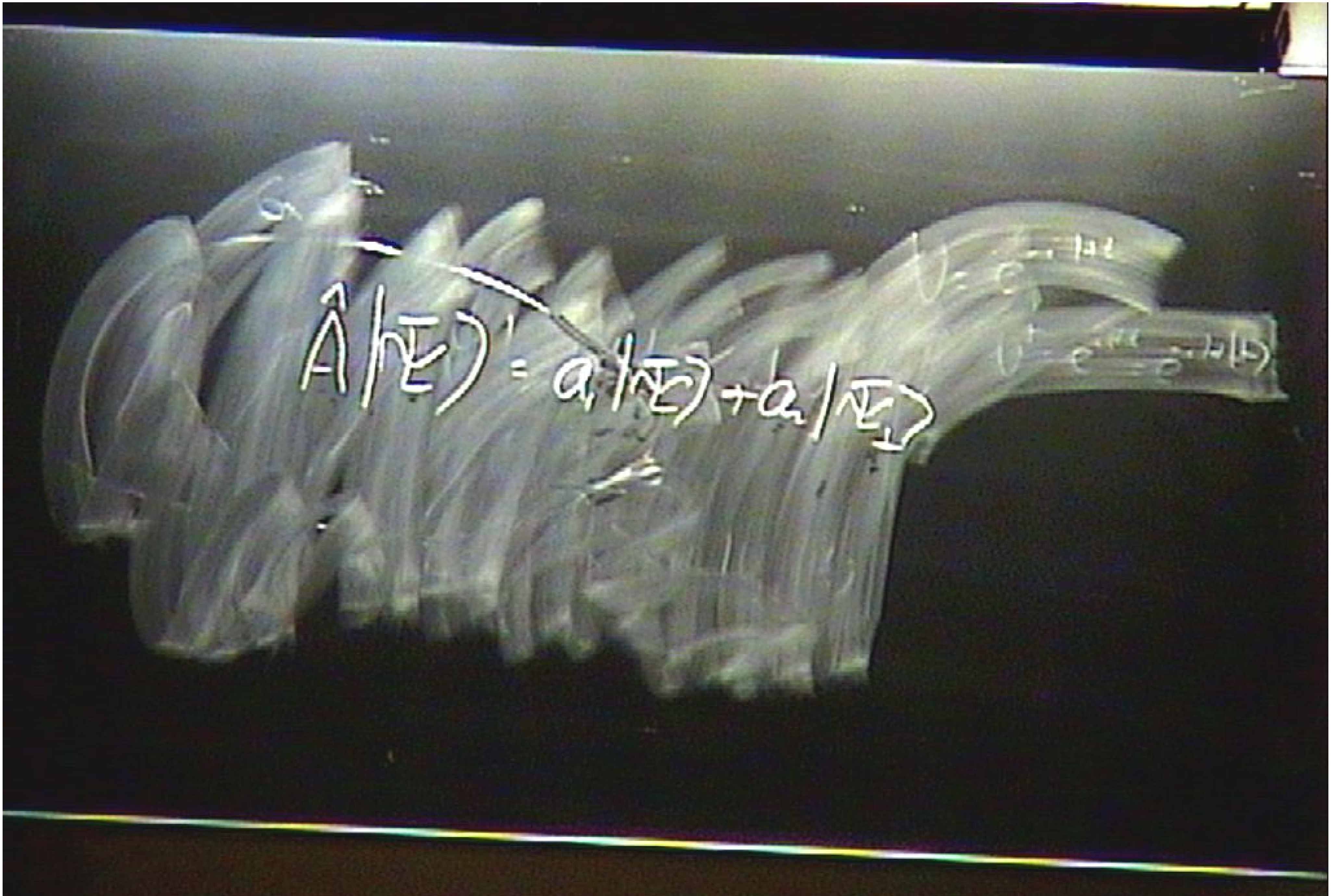
$U = e^{-i\hat{H}t}$.

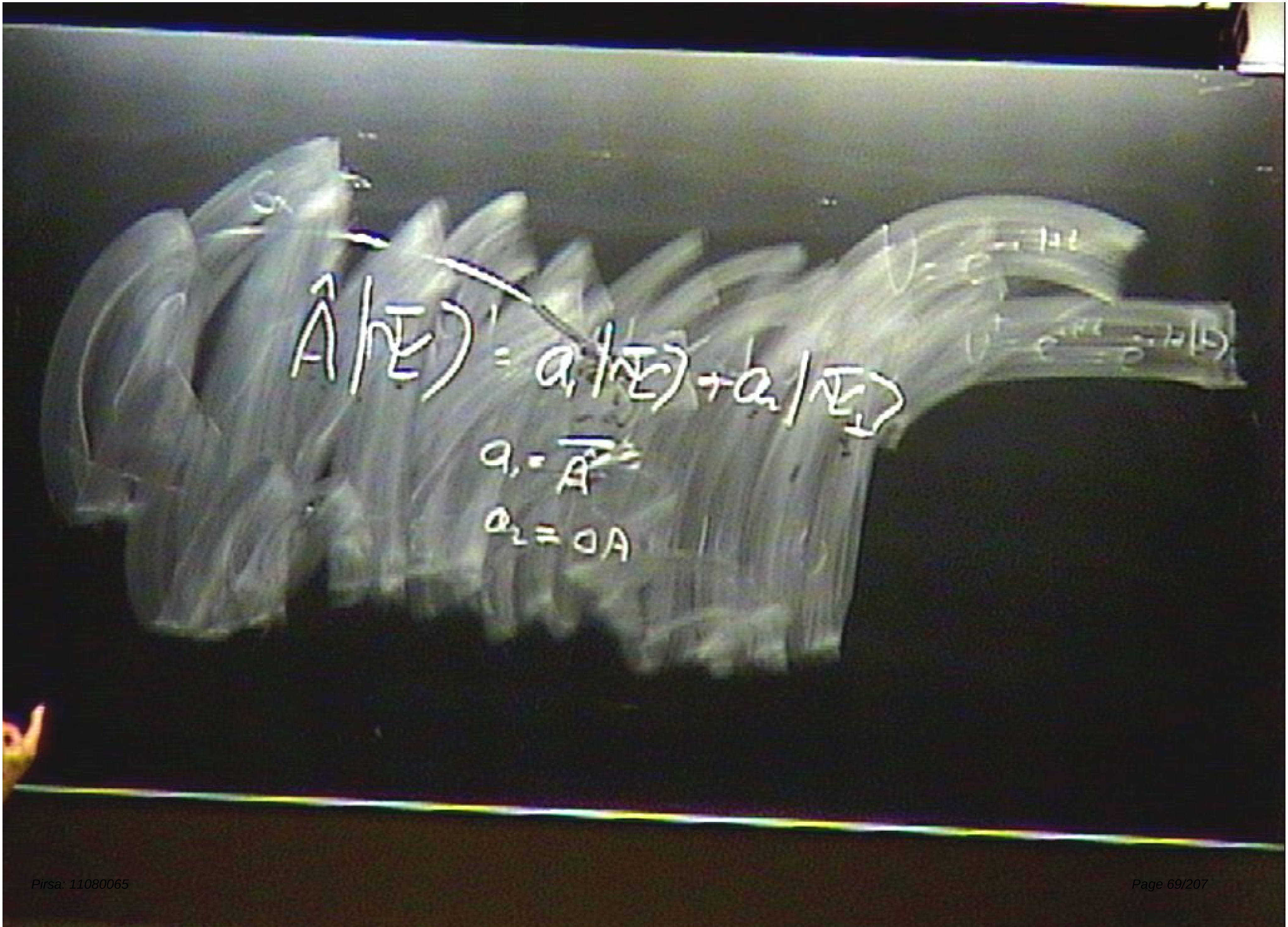
$$|\Psi_{tot}\rangle = \prod_{n=1}^{N} |\psi(n)\rangle.$$

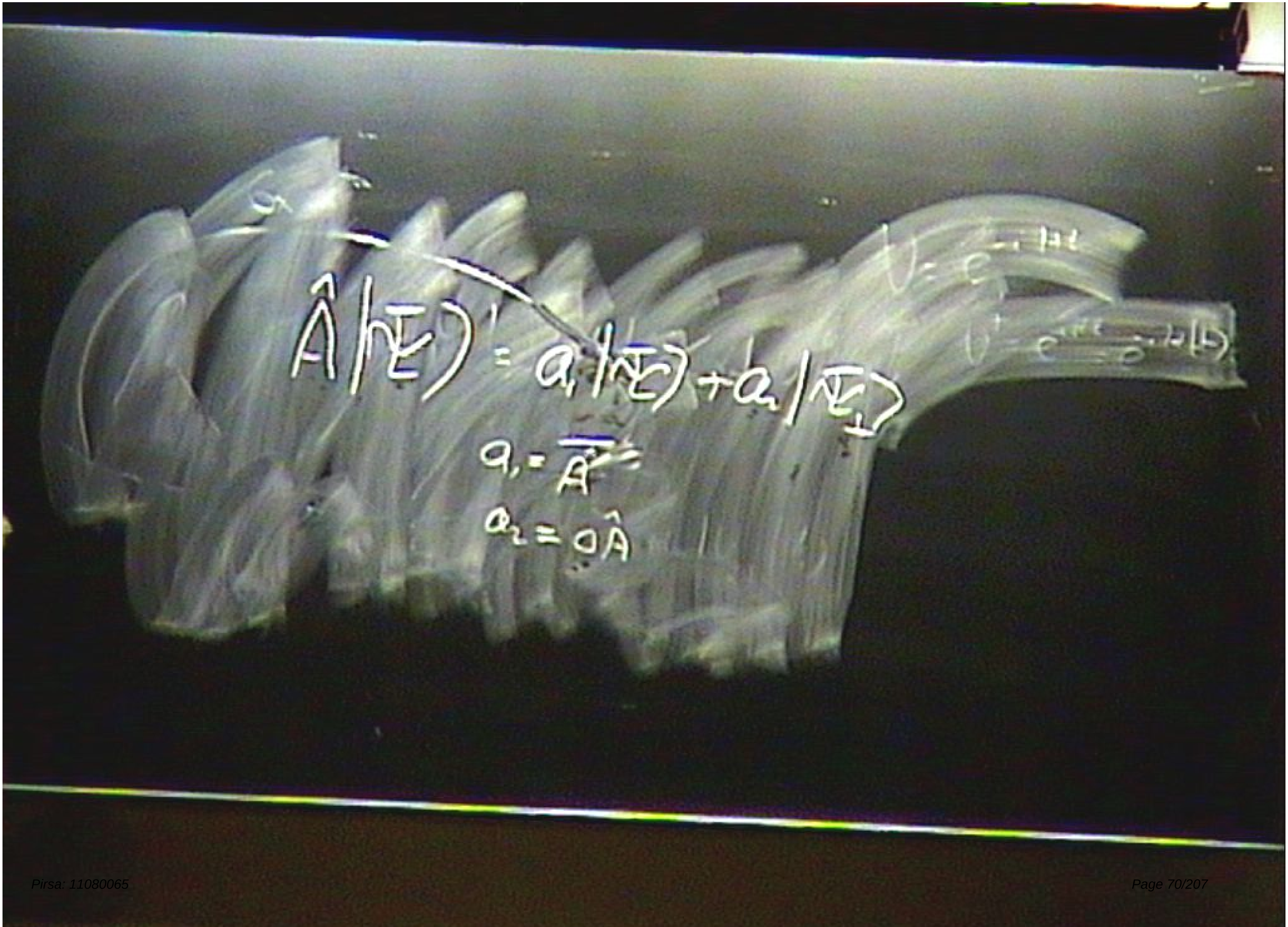
$$\sum \frac{\hat{A}_n}{N} |\Psi_{tot}\rangle = \bar{A} |\Psi_{tot}\rangle + |\delta\Psi_{\perp}\rangle$$

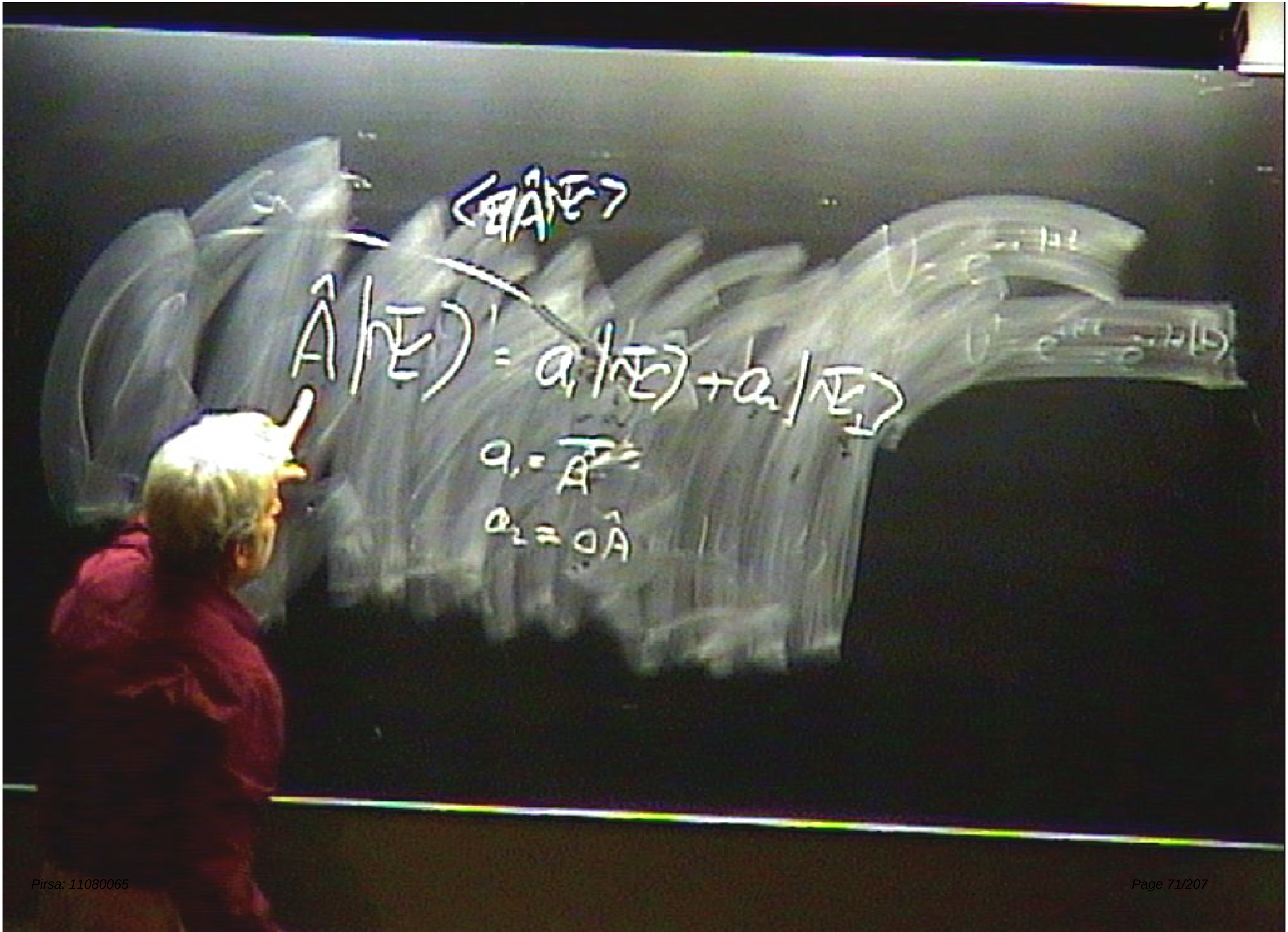


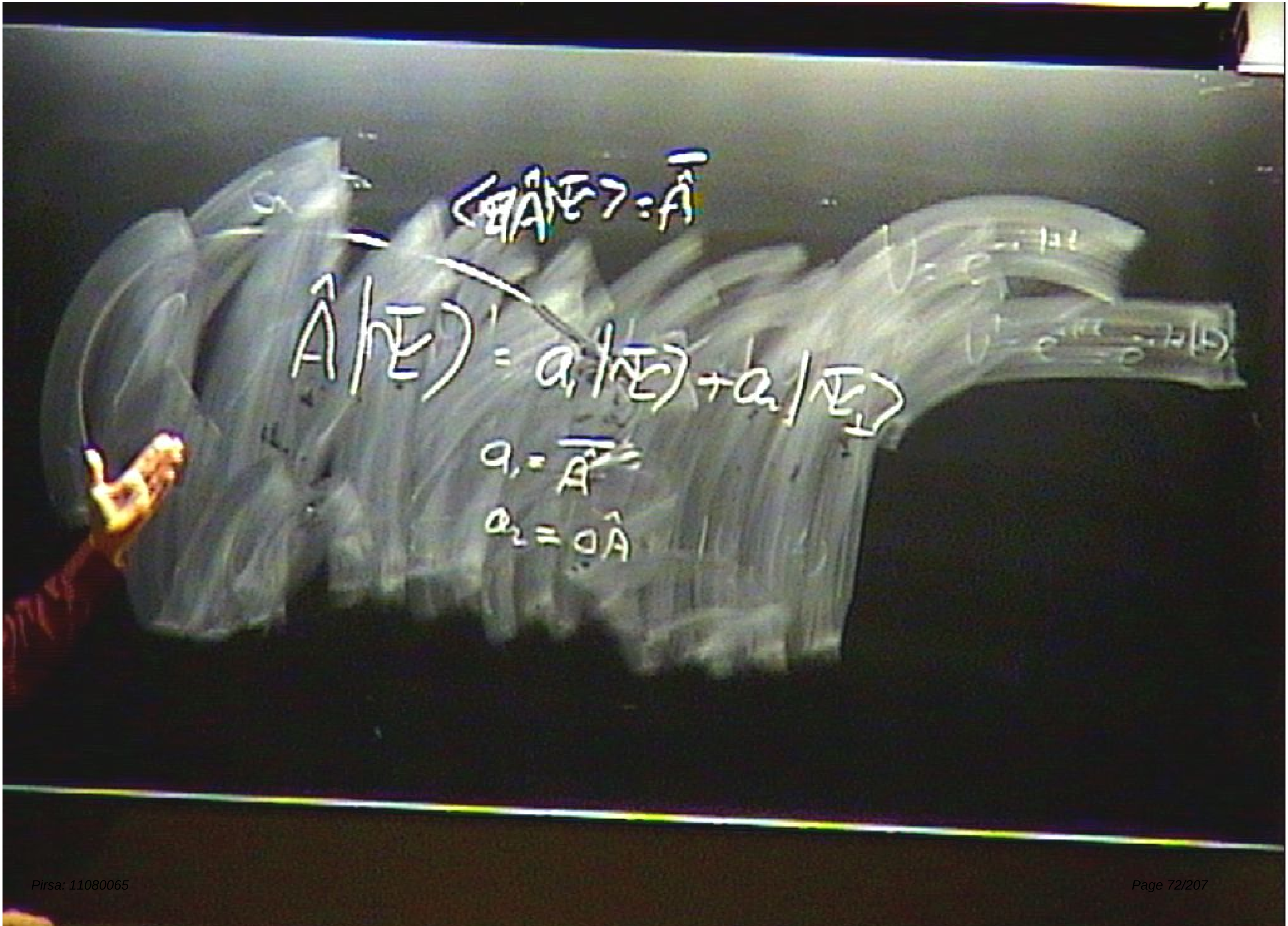

Â|ψ_E⟩ = a₁|ψ_E⟩ + a₂|ψ_E⟩

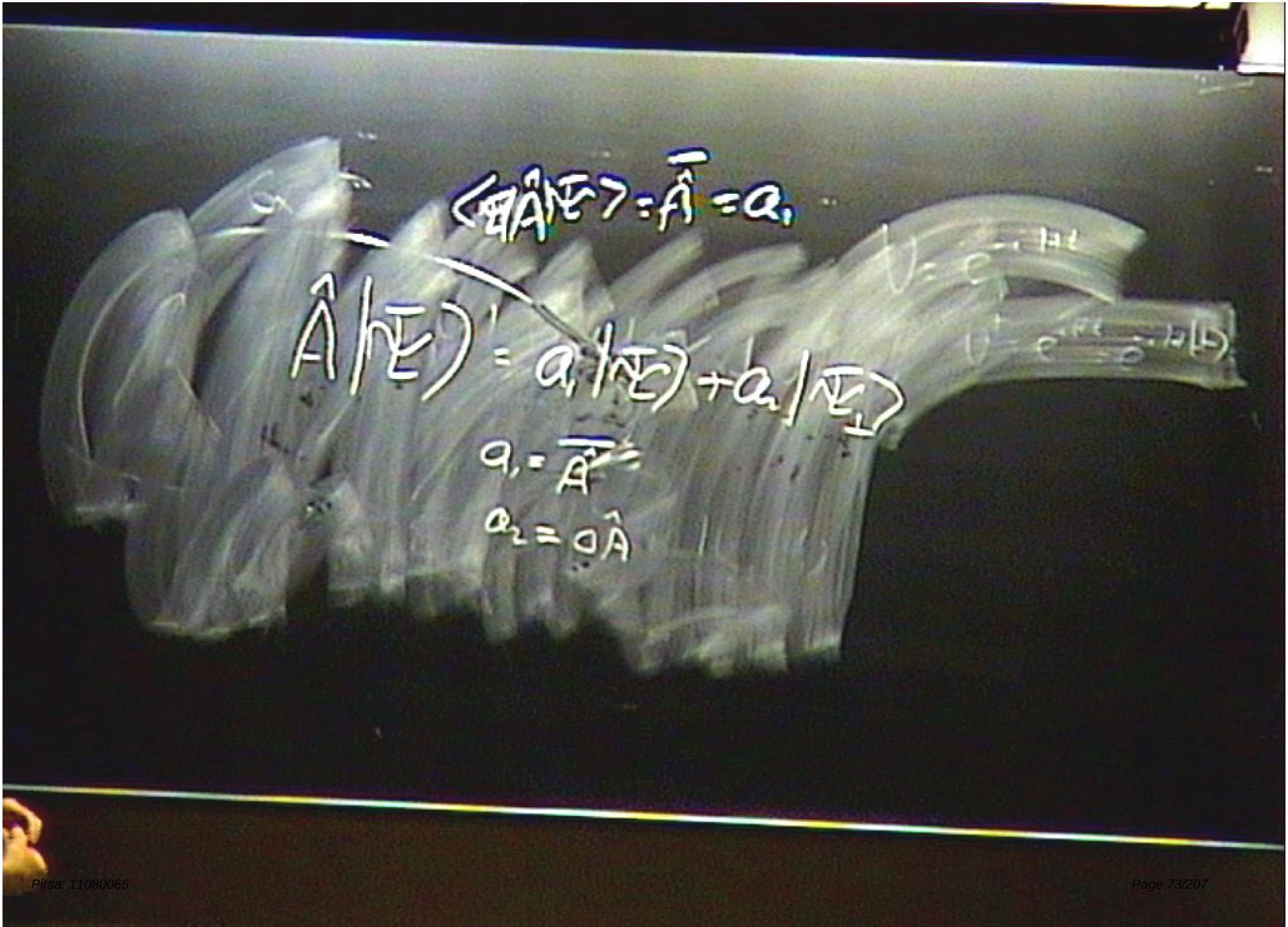



a₁ = Ā
a₂ = ΔA

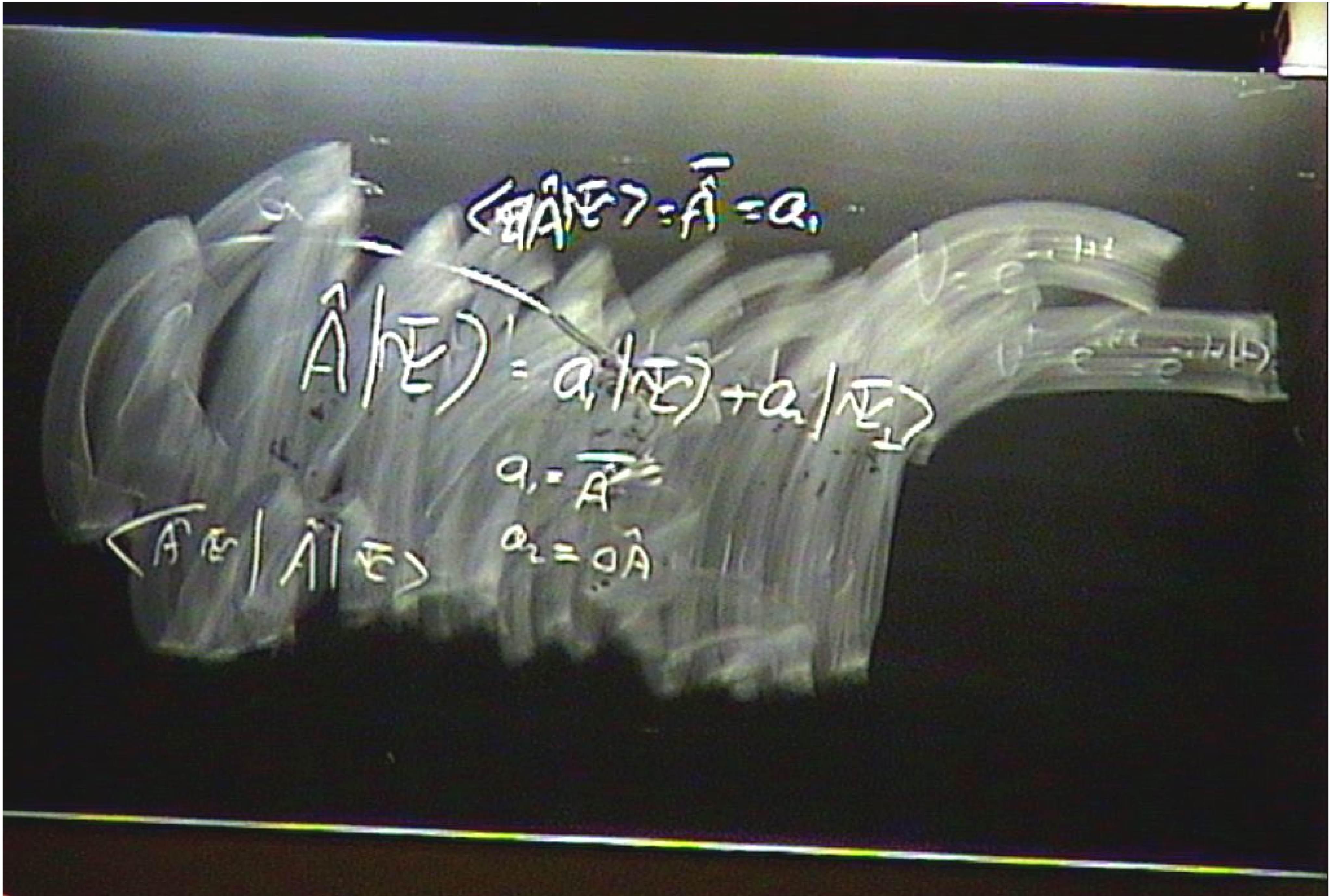

Â|E⟩ = a₁|E⟩ + a₂|E⊥⟩
a₁ = Ā
a₂ = ΔÂ

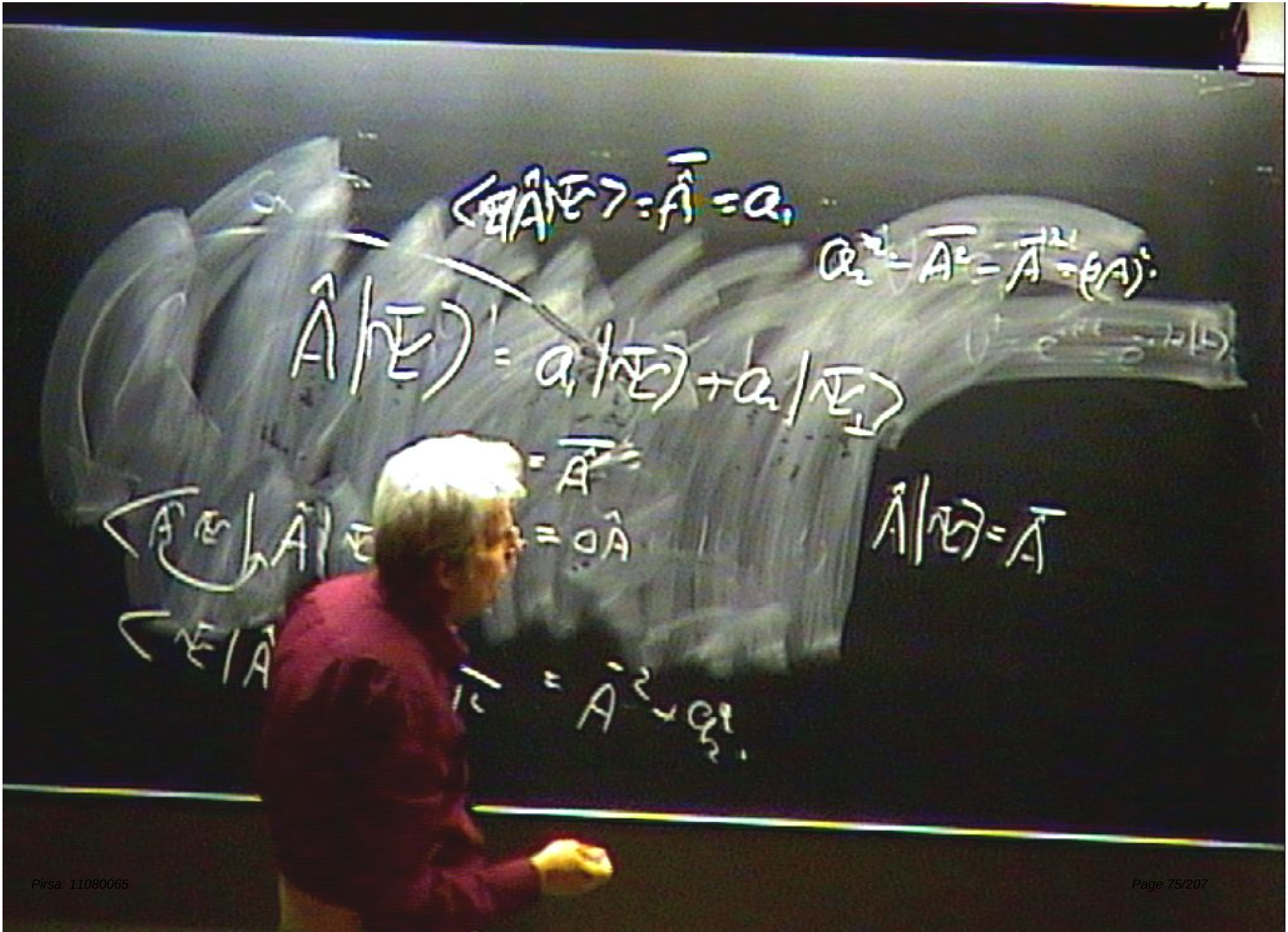

⟨Ψ|Â|Ψ⟩
Â|Ψ⟩ = a1|Ψ⟩ + a2|Ψ⊥⟩
a1 = Ā
a2 = ΔÂ

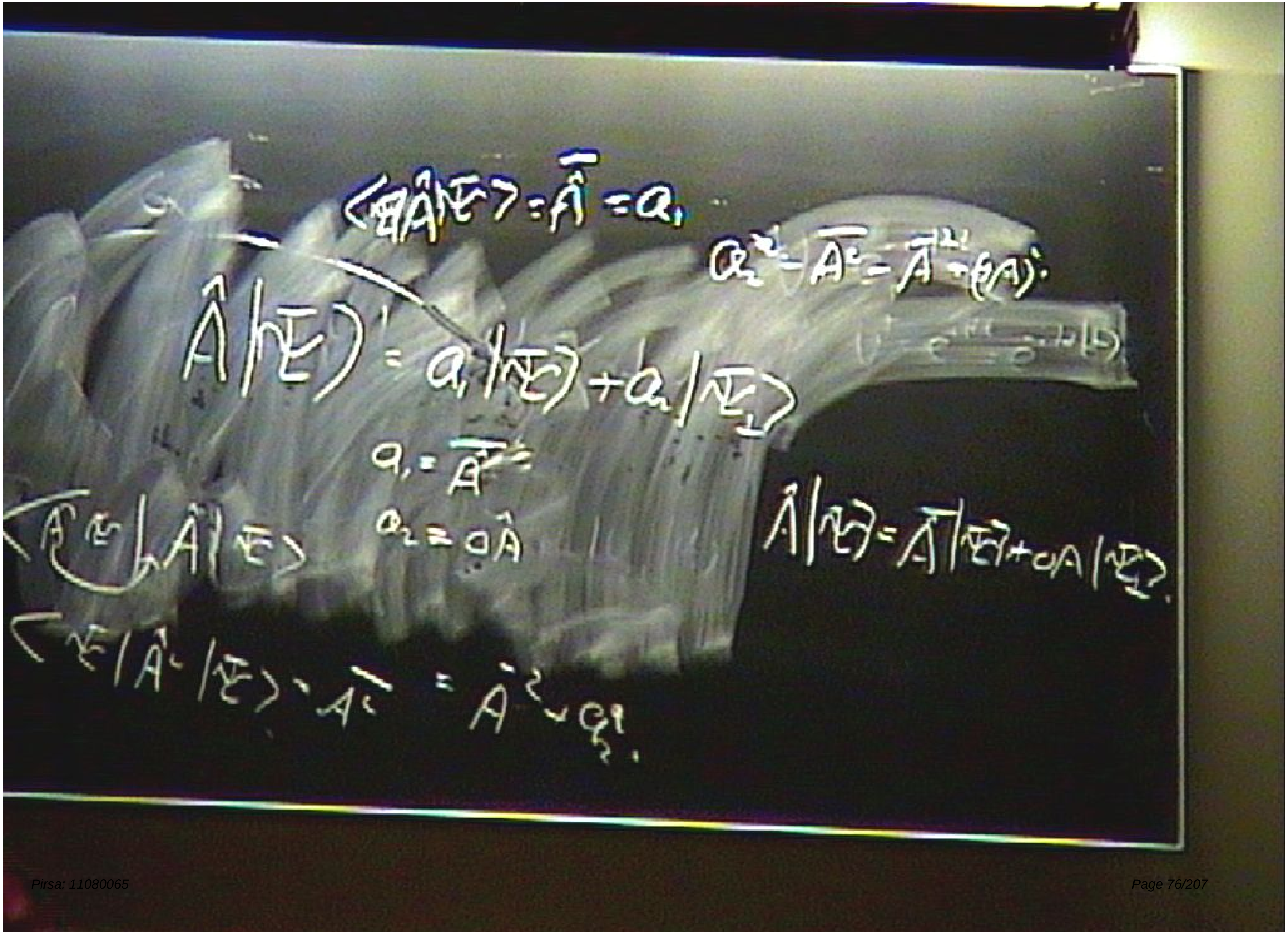

⟨Ψ|Â|Ψ⟩ = Ā
Â|Ψ⟩ = a₁|Ψ⟩ + a₂|Ψ⊥⟩
a₁ = Ā
a₂ = ΔÂ



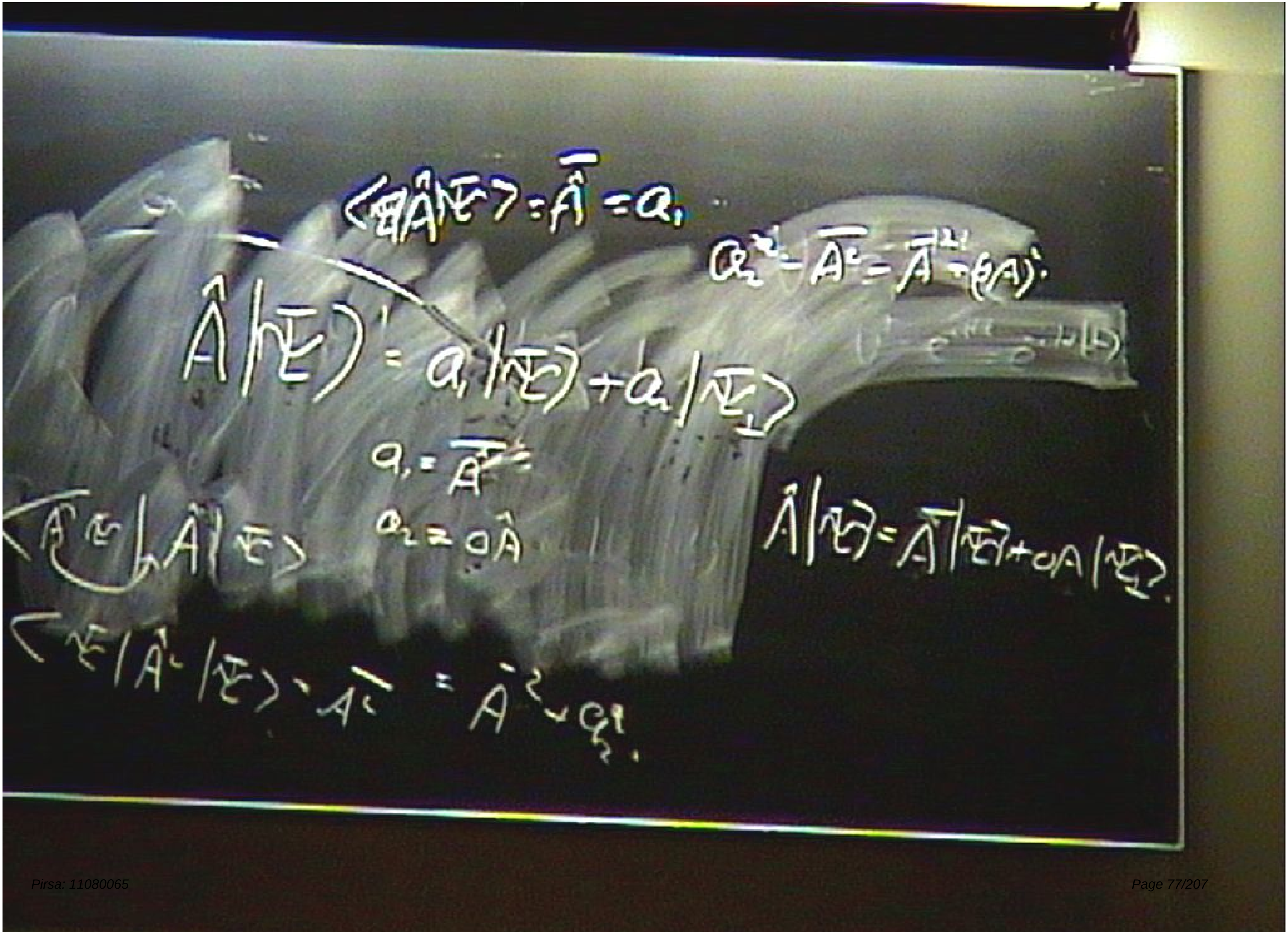
⟨Ψ|Â|Ψ⟩ = Ā = a₁
Â|Ψ⟩ = a₁|Ψ⟩ + a₂|Ψ⊥⟩
a₁ = Ā
a₂ = ΔÂ

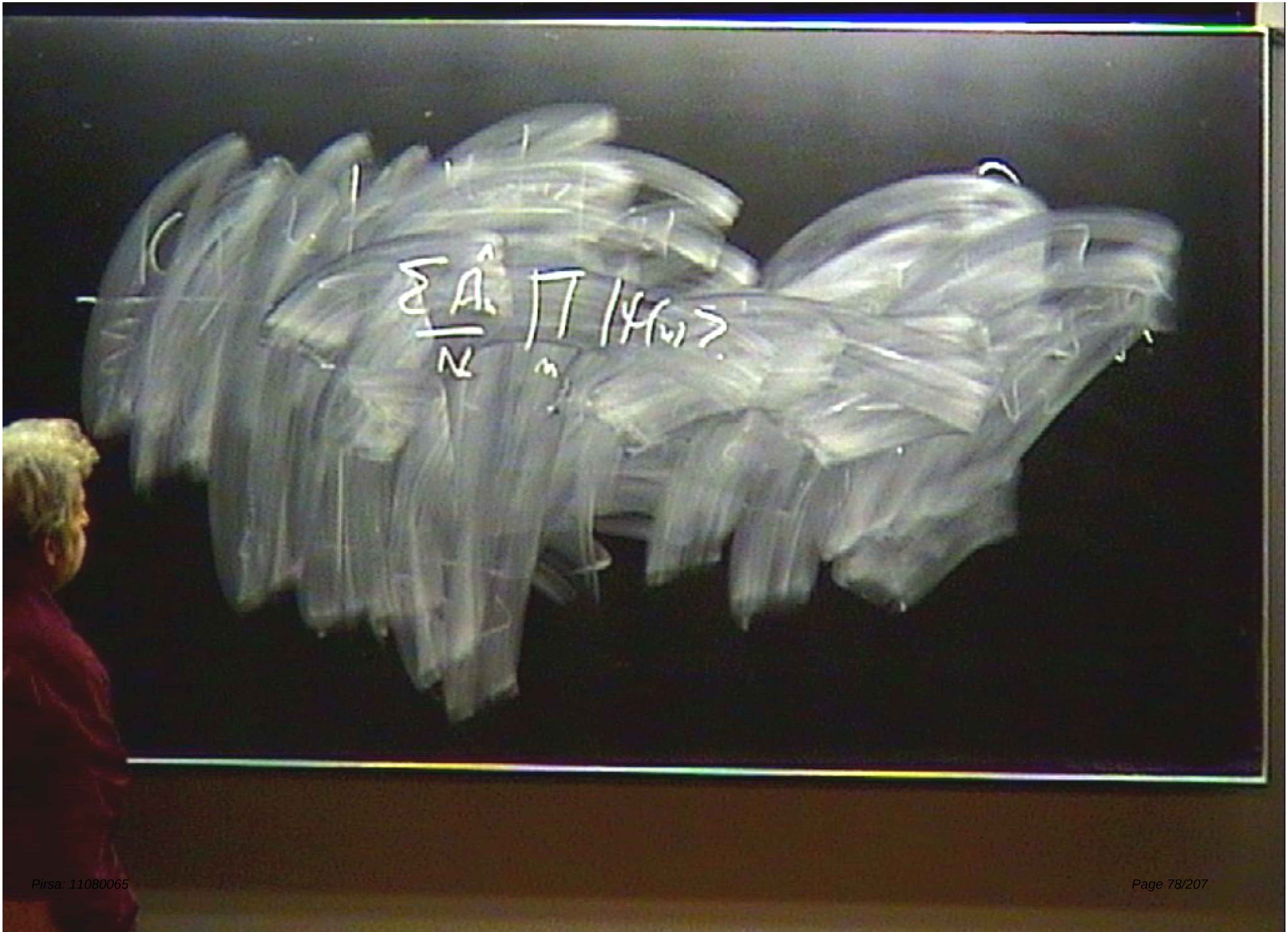

⟨ψ|Â|ψ⟩ = Ā = a₁
Â|ψ⟩ = a₁|ψ⟩ + a₂|ψ⊥⟩
a₁ = Ā
a₂ = ΔÂ
⟨Âψ|Â|ψ⟩

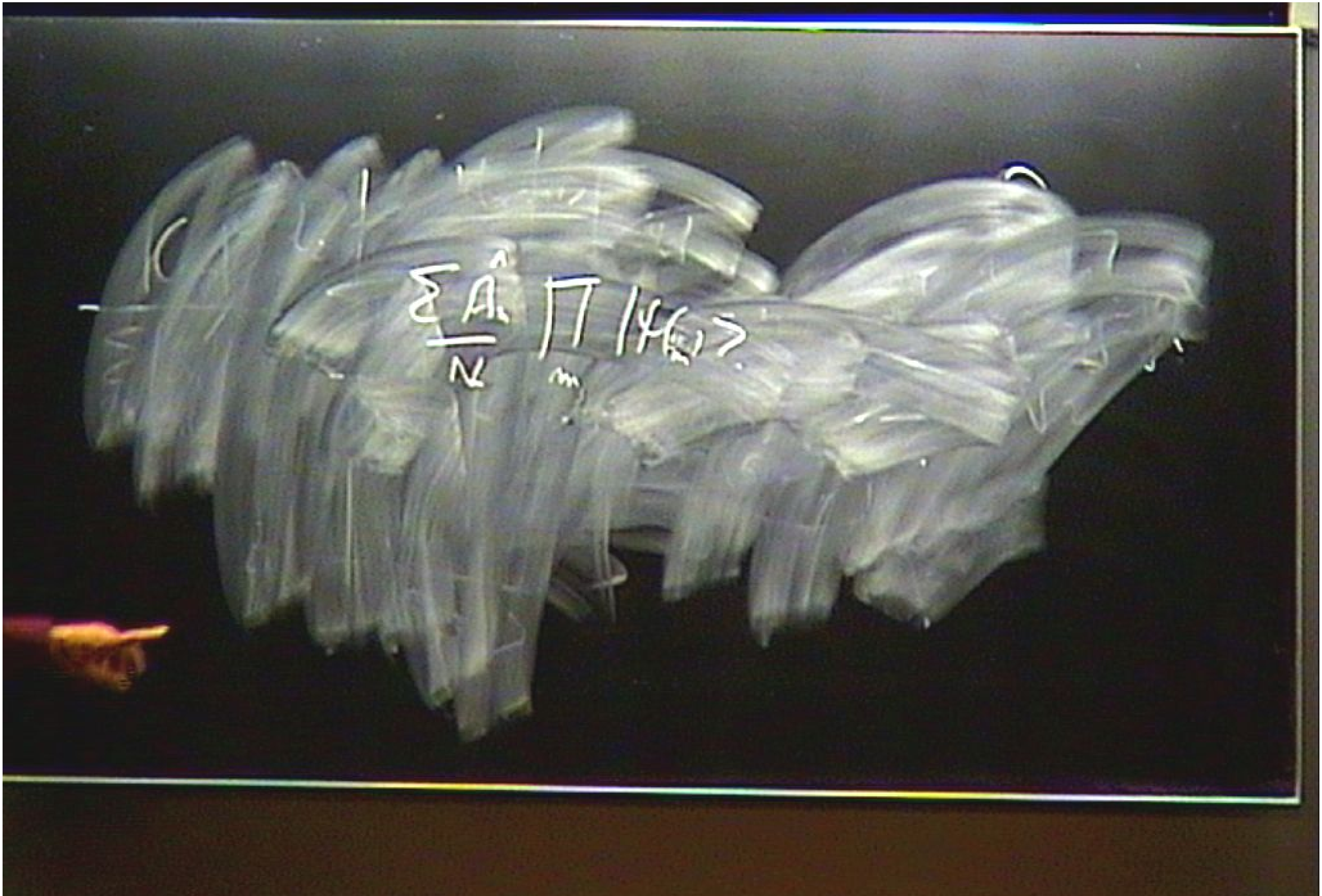


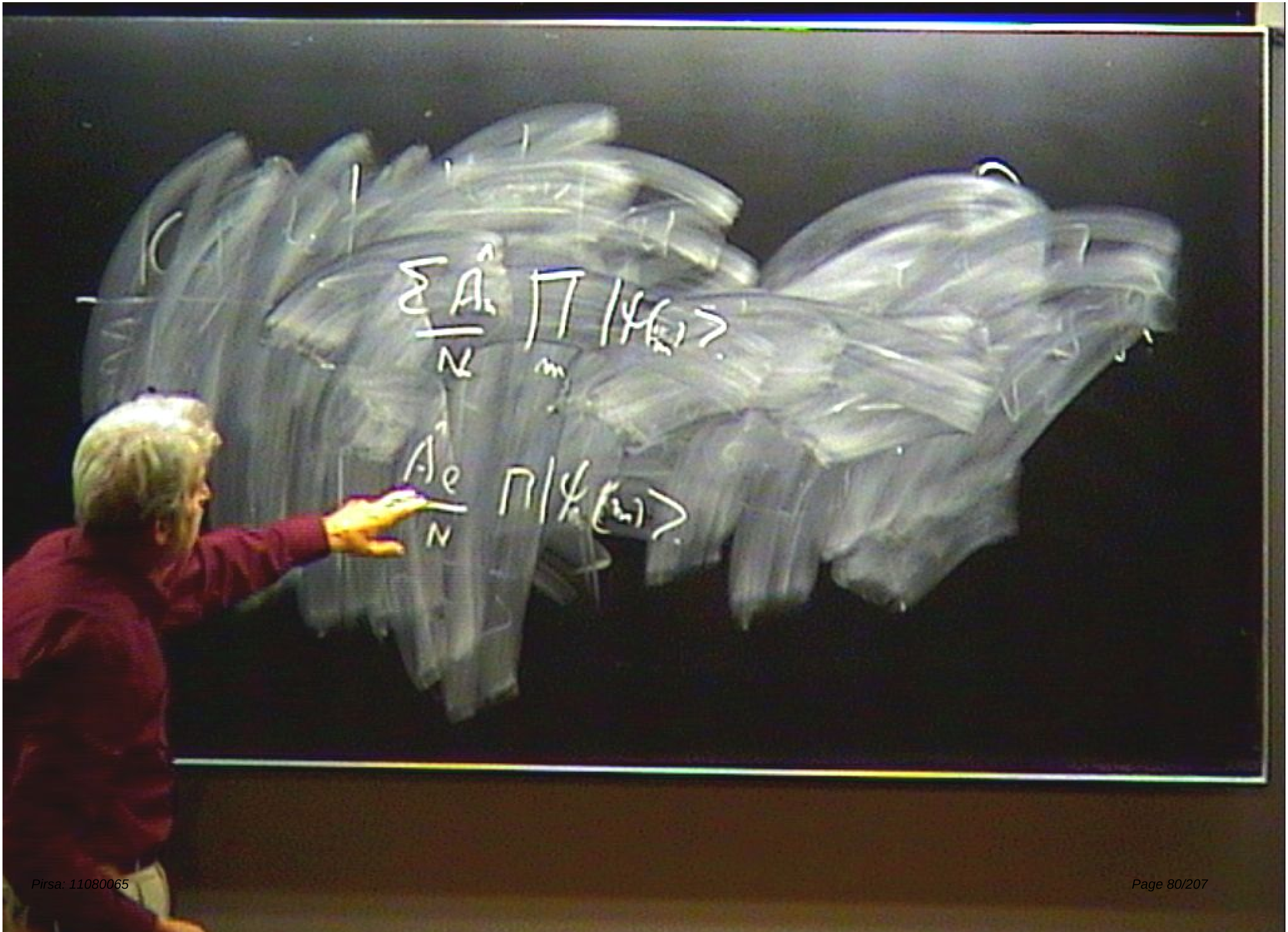


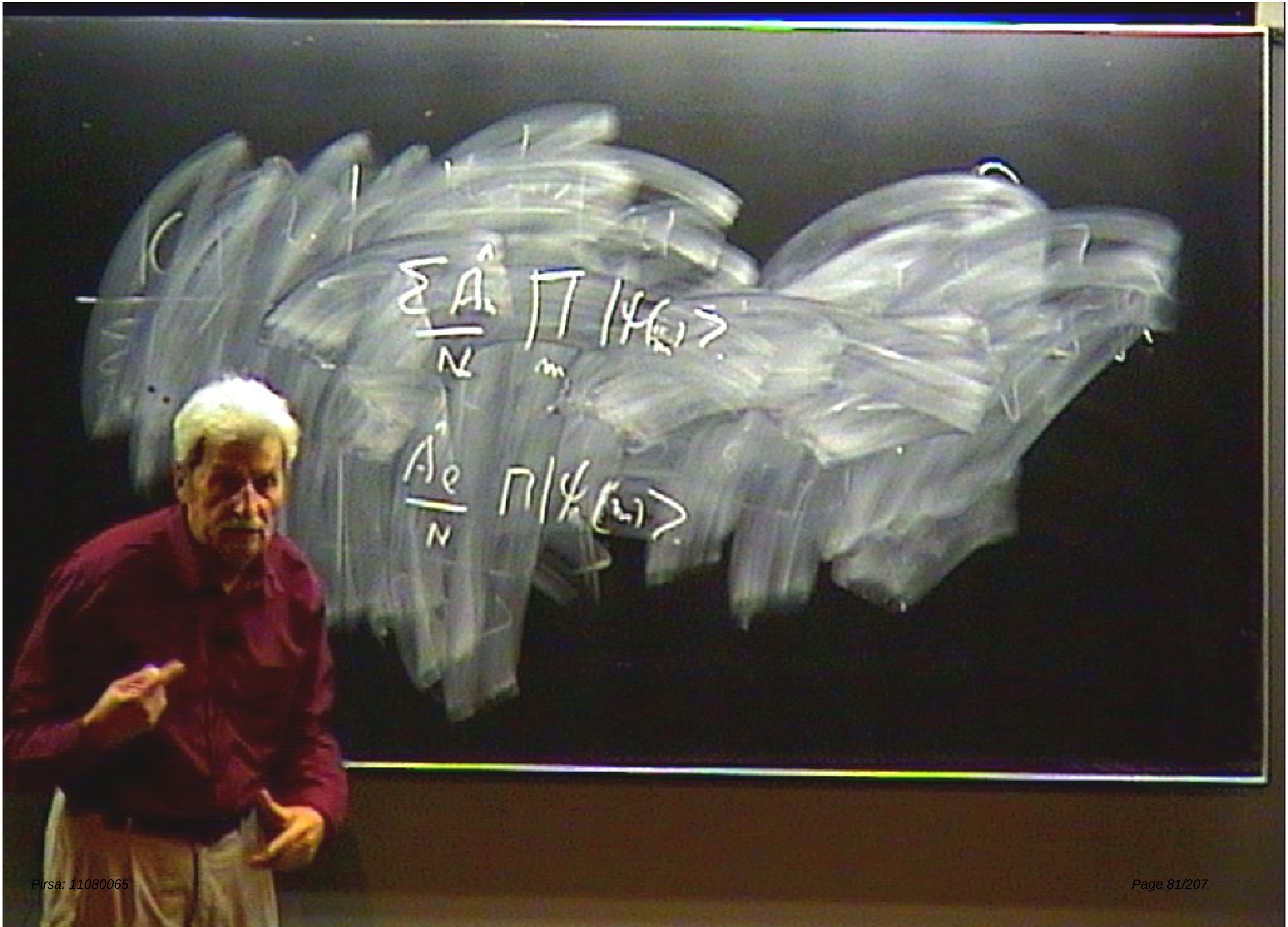
⟨ψ|Â|ψ⟩ = Ā = a₁
Â|ψ⟩ = a₁|ψ⟩ + a₂|ψ⊥⟩
a₁ = Ā
a₂ = ΔÂ
Â|ψ⟩ = Ā|ψ⟩ + ΔA|ψ⊥⟩


$\langle E|\hat{A}|E\rangle = \bar{A} = a_1$
$a_2^2 = \overline{A^2} - \bar{A}^2 = (\Delta A)^2$
$\hat{A}|E\rangle = a_1|E\rangle + a_2|E_\perp\rangle$
$a_1 = \bar{A}$
$a_2 = \Delta\hat{A}$
$\hat{A}|E\rangle = \bar{A}|E\rangle + \Delta A|E_\perp\rangle$
$\langle E|\hat{A}|E\rangle$
$\langle E|\hat{A}^2|E\rangle = \overline{A^2} = \bar{A}^2 + a_2^2$

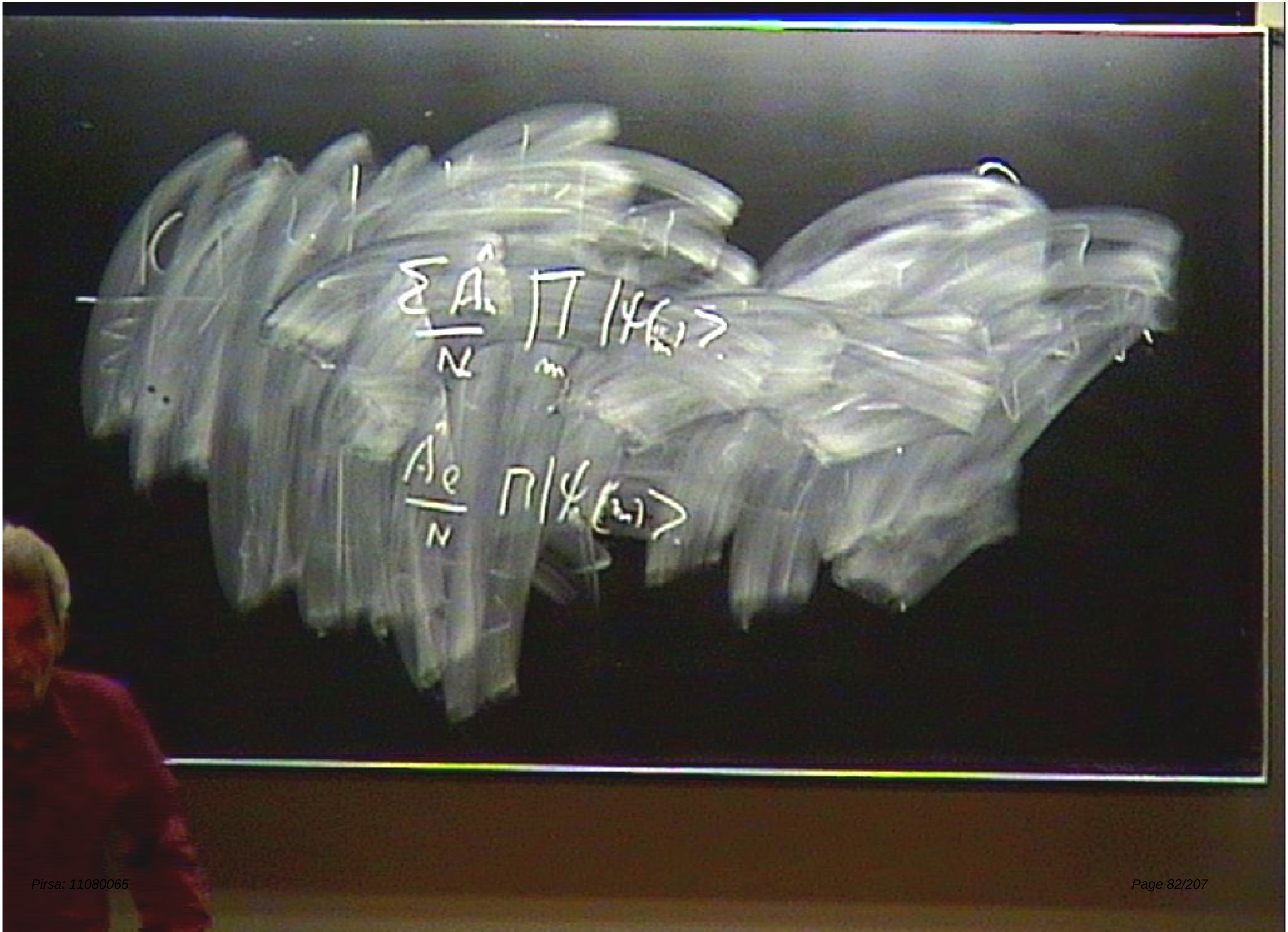


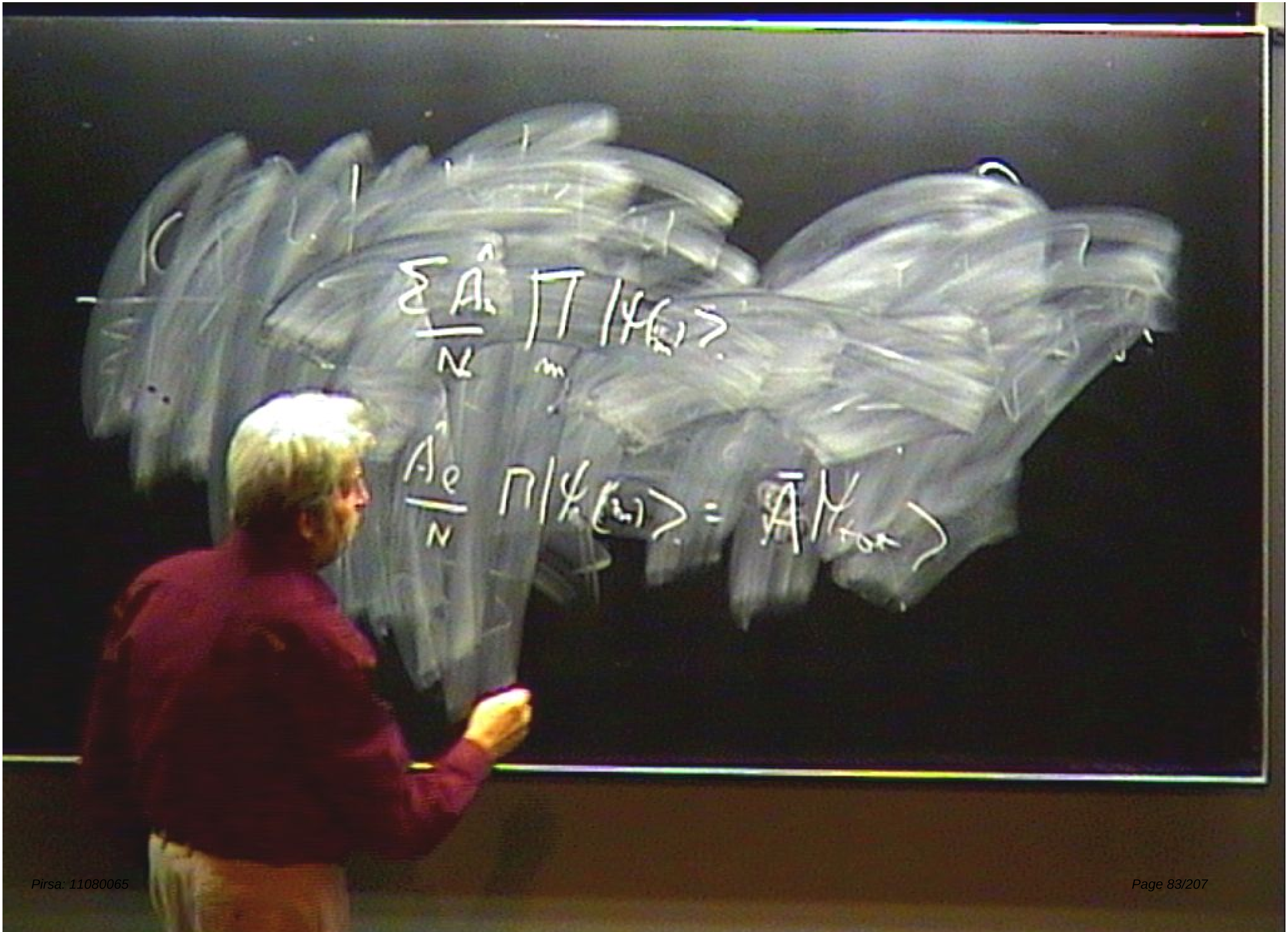

$\sum_N \hat{A}_N \prod_m |\psi_m\rangle$

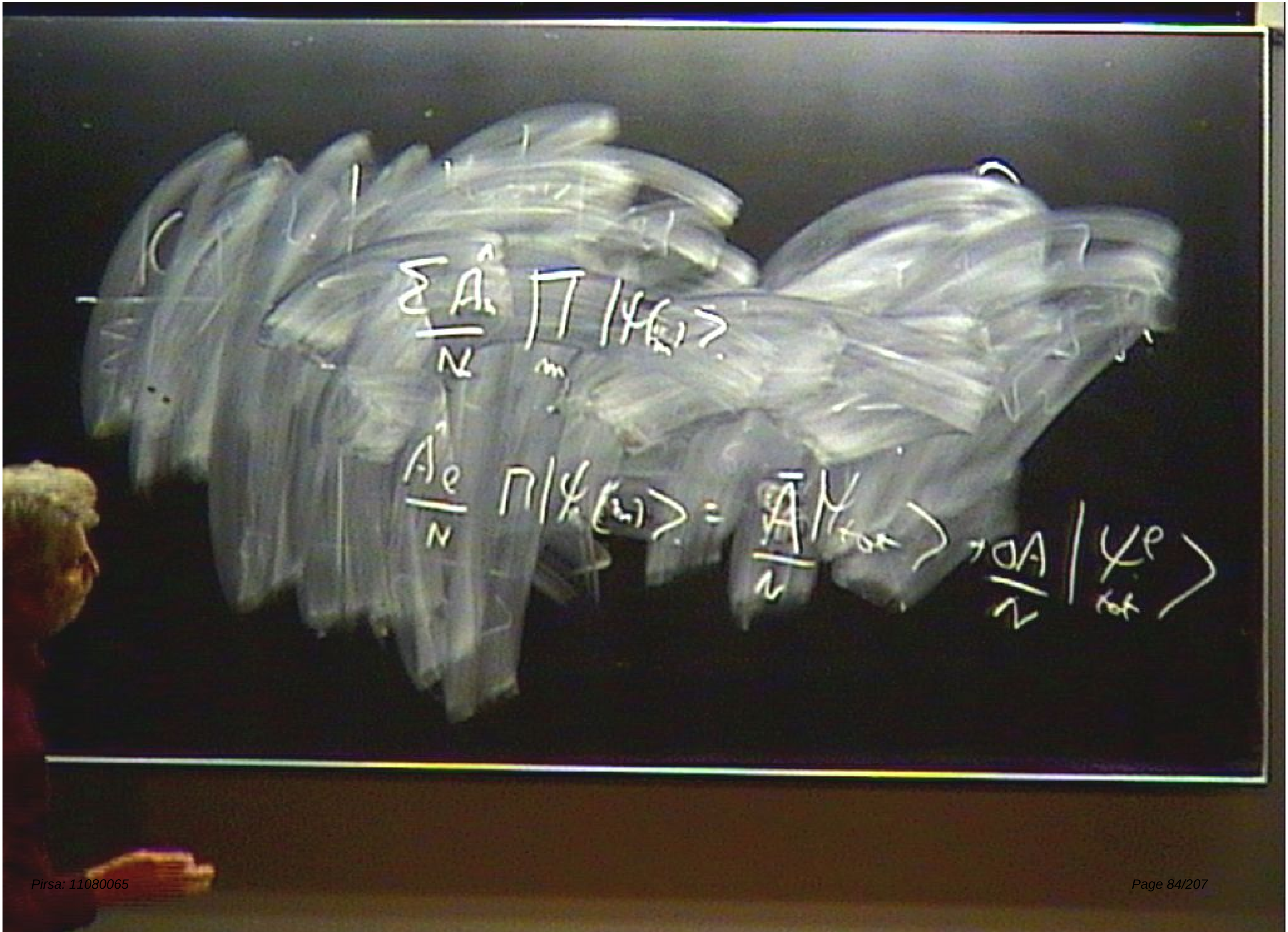


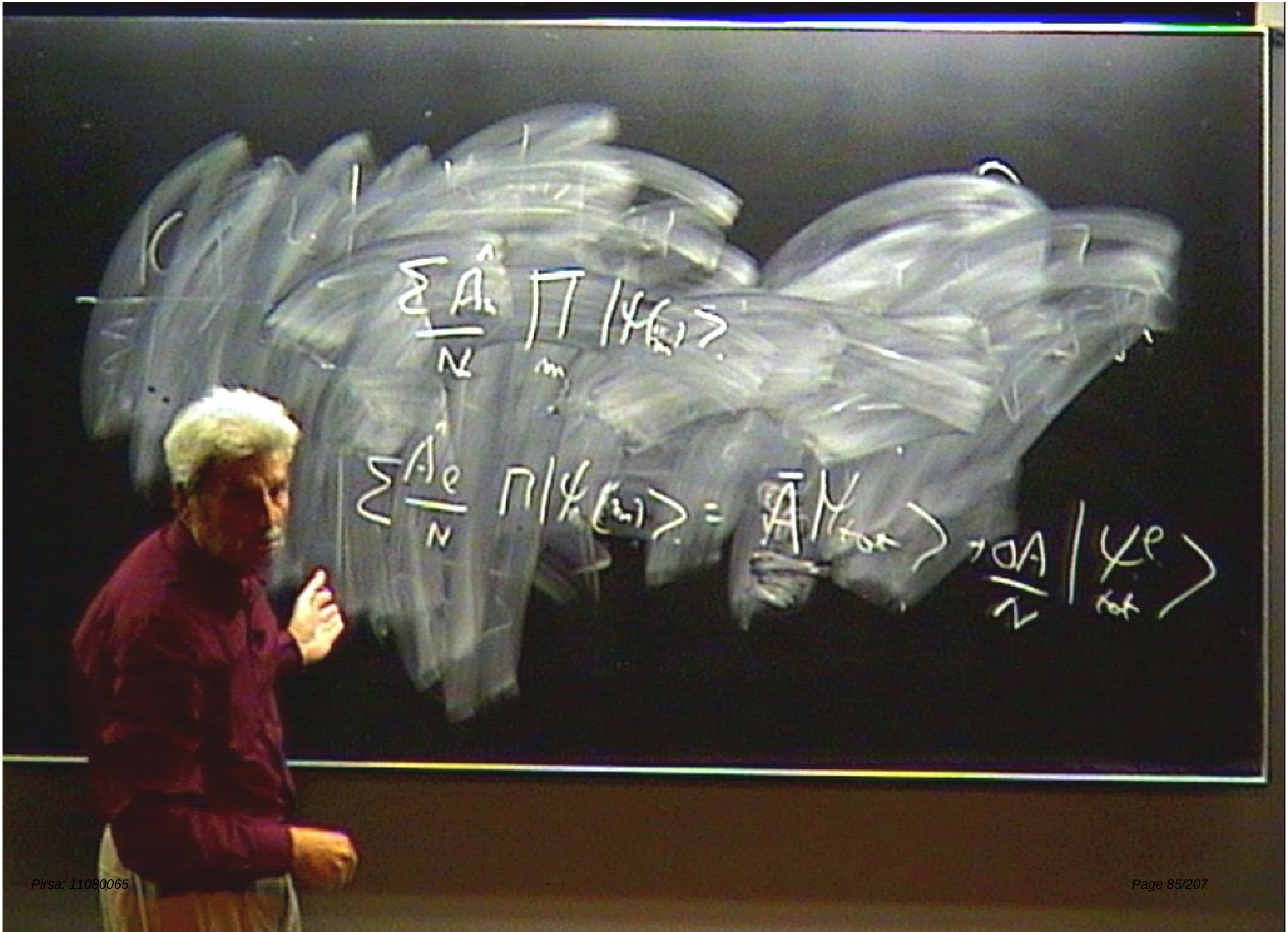


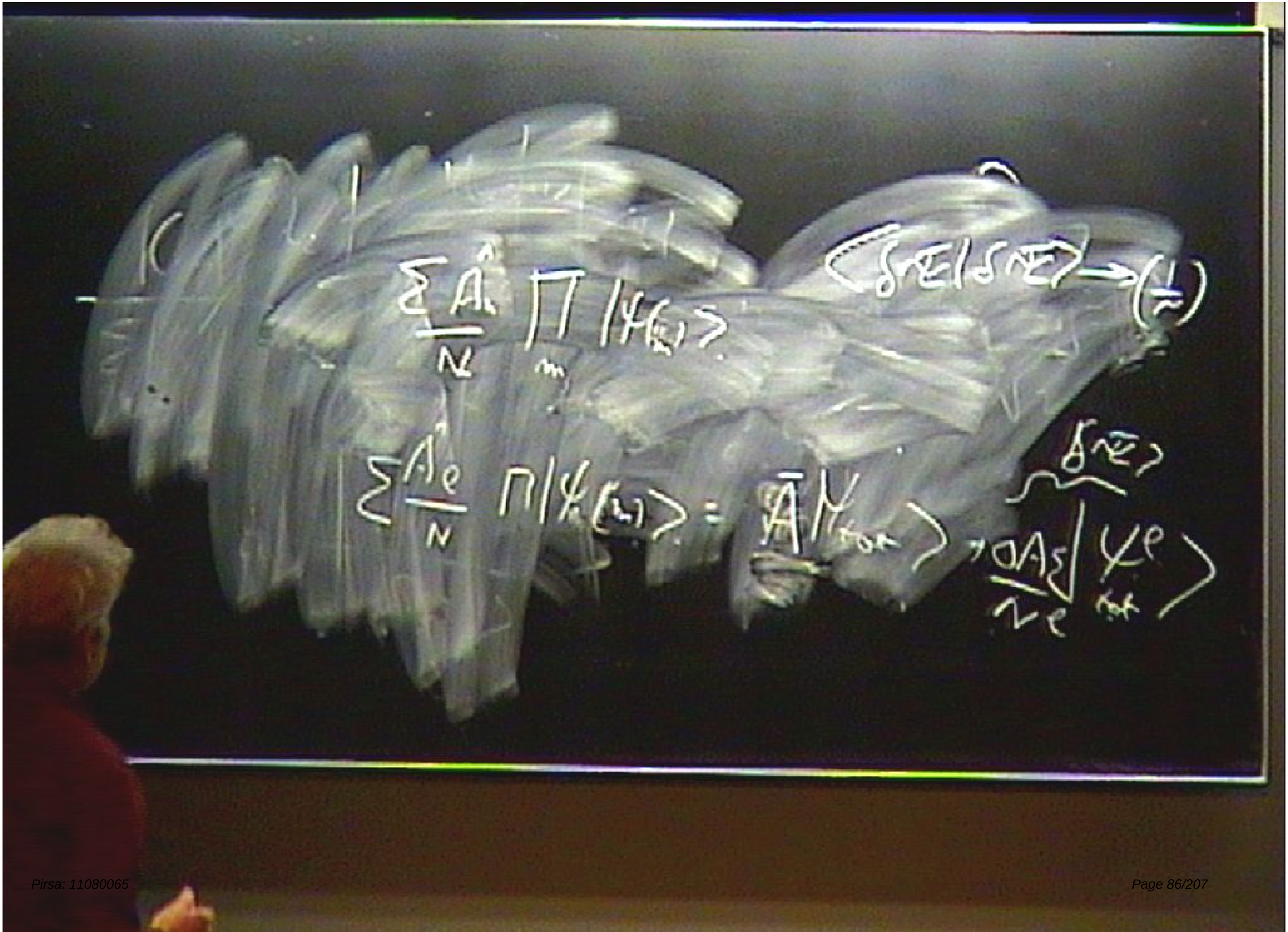
Σ Â_n / N ∏_m |ψ(m)>
Â_e / N ∏ |ψ(m)>

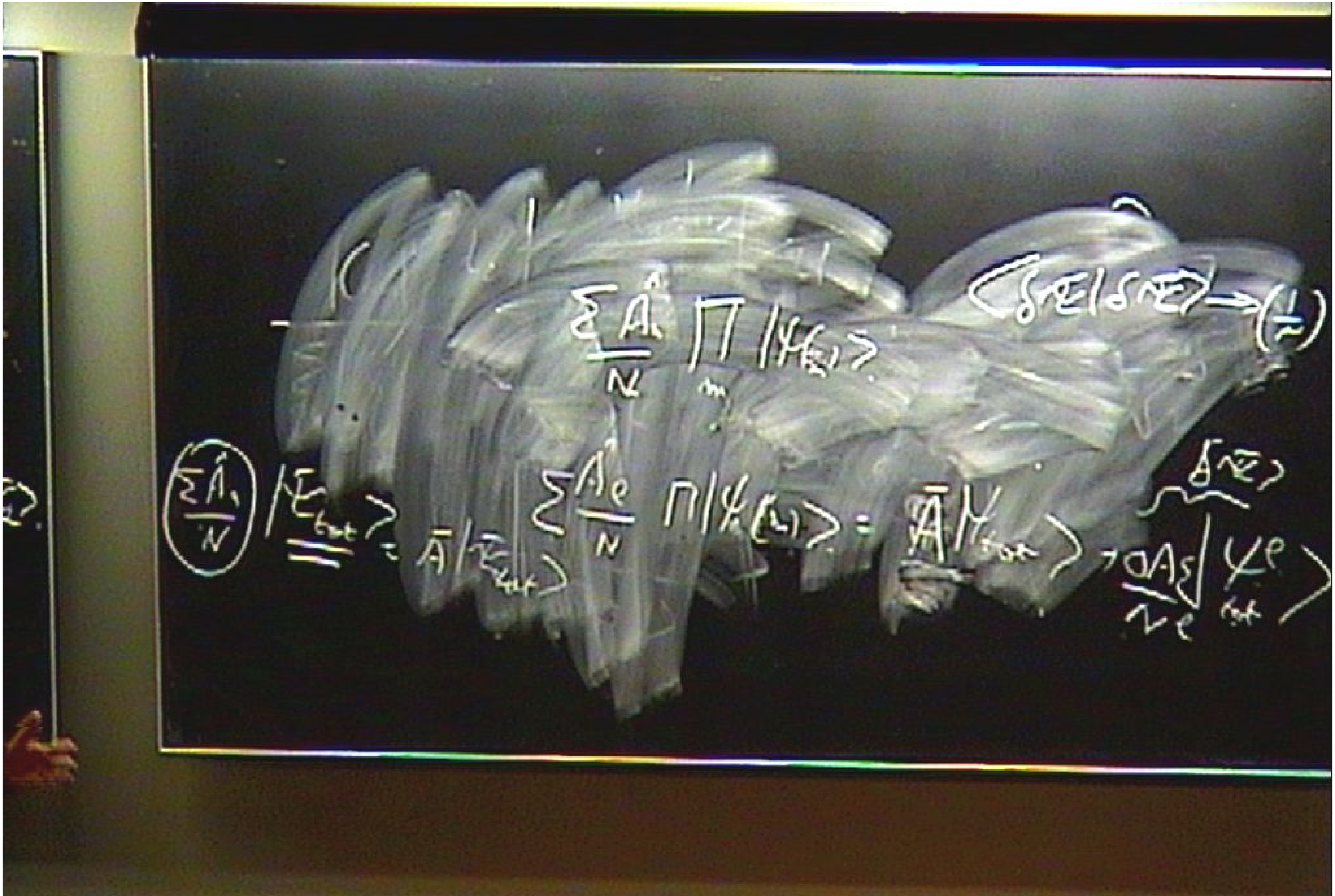

Σ Â / N Π |ψ(m)>
m
Â_e / N Π|ψ(m)>

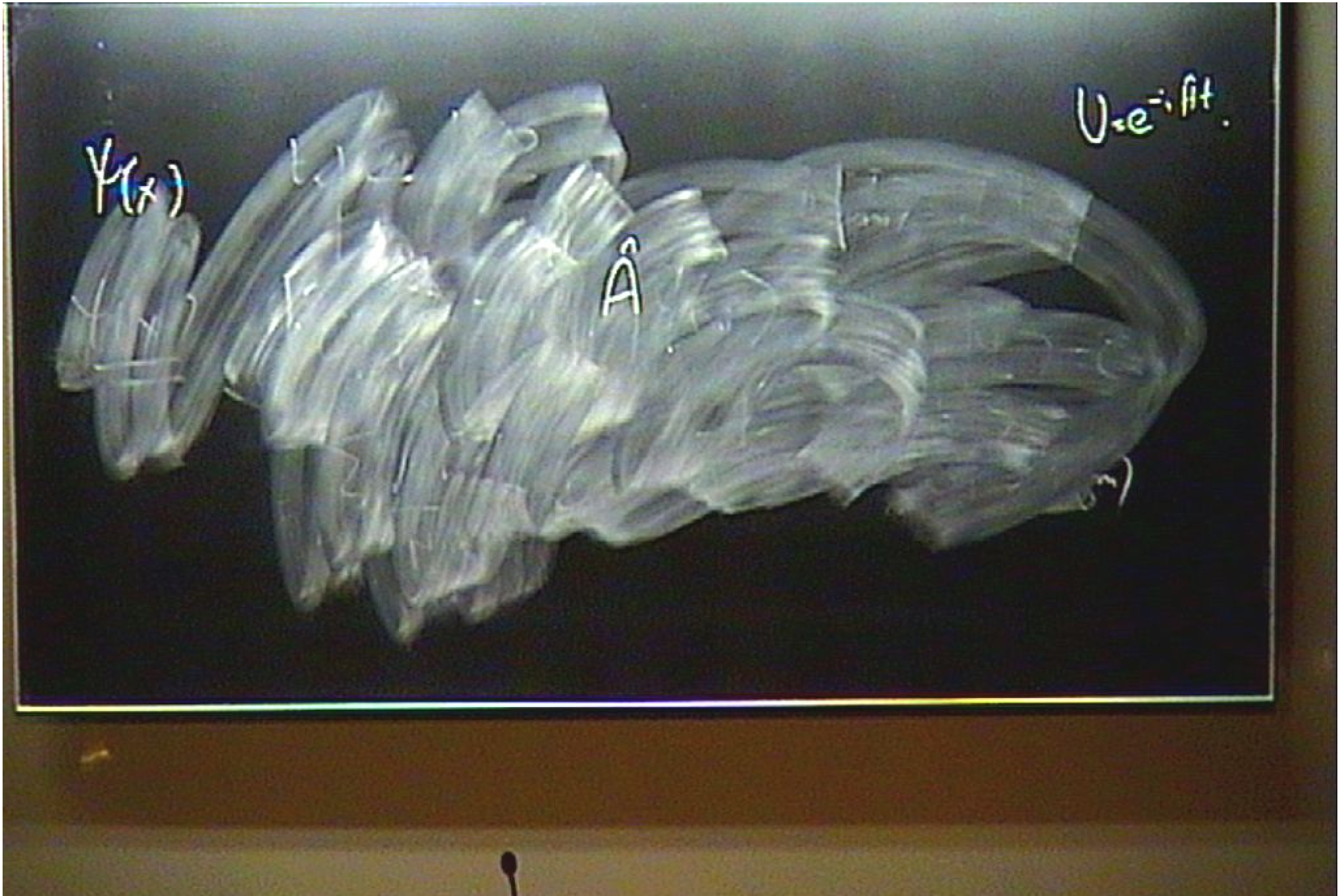

$\frac{\sum \hat{A}_n}{N} \prod_m |\psi_m\rangle$
$\frac{\hat{A}_e}{N} \prod |\psi_n(x_n)\rangle = \bar{A}|\psi_{tot}\rangle$

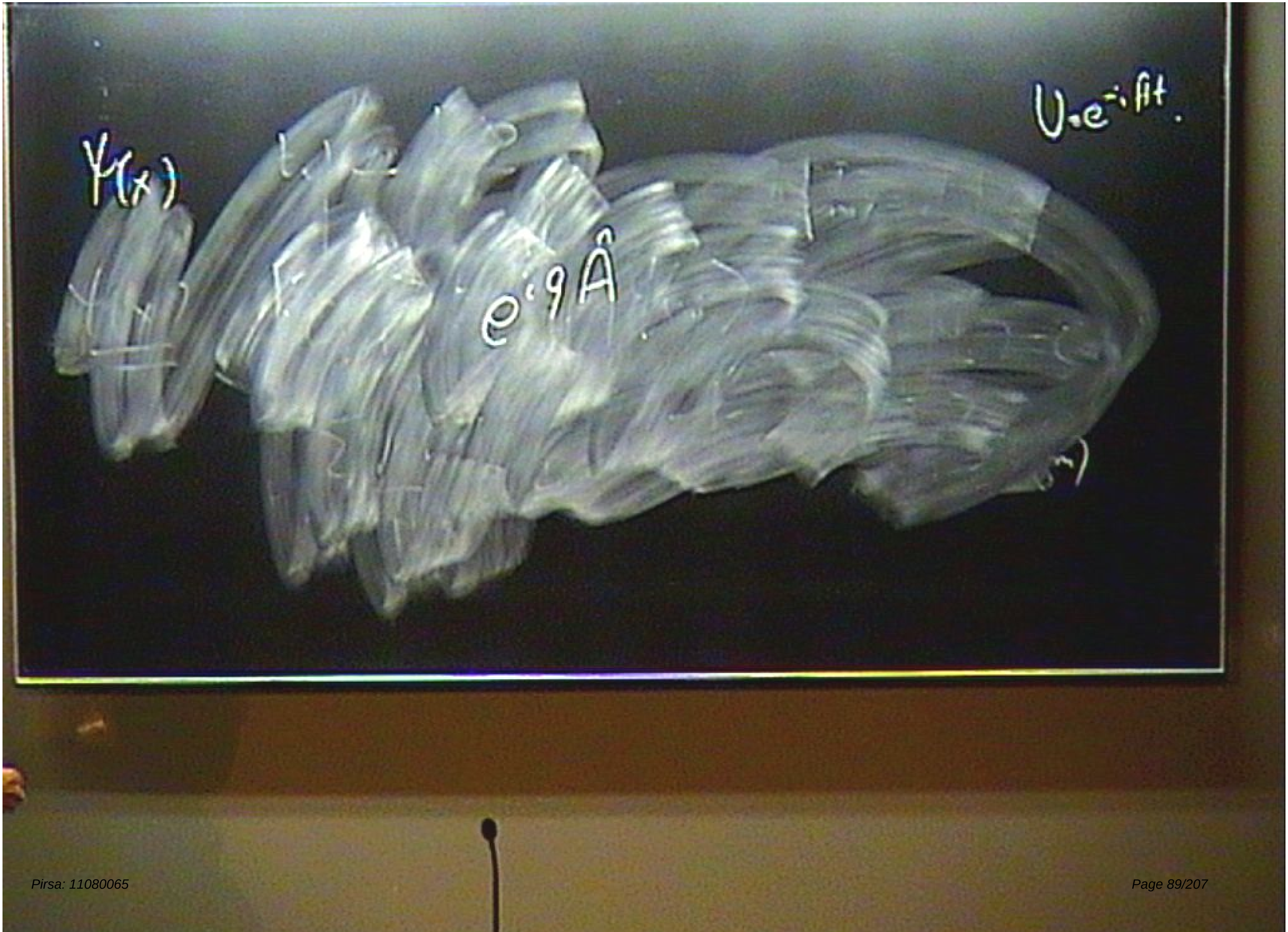


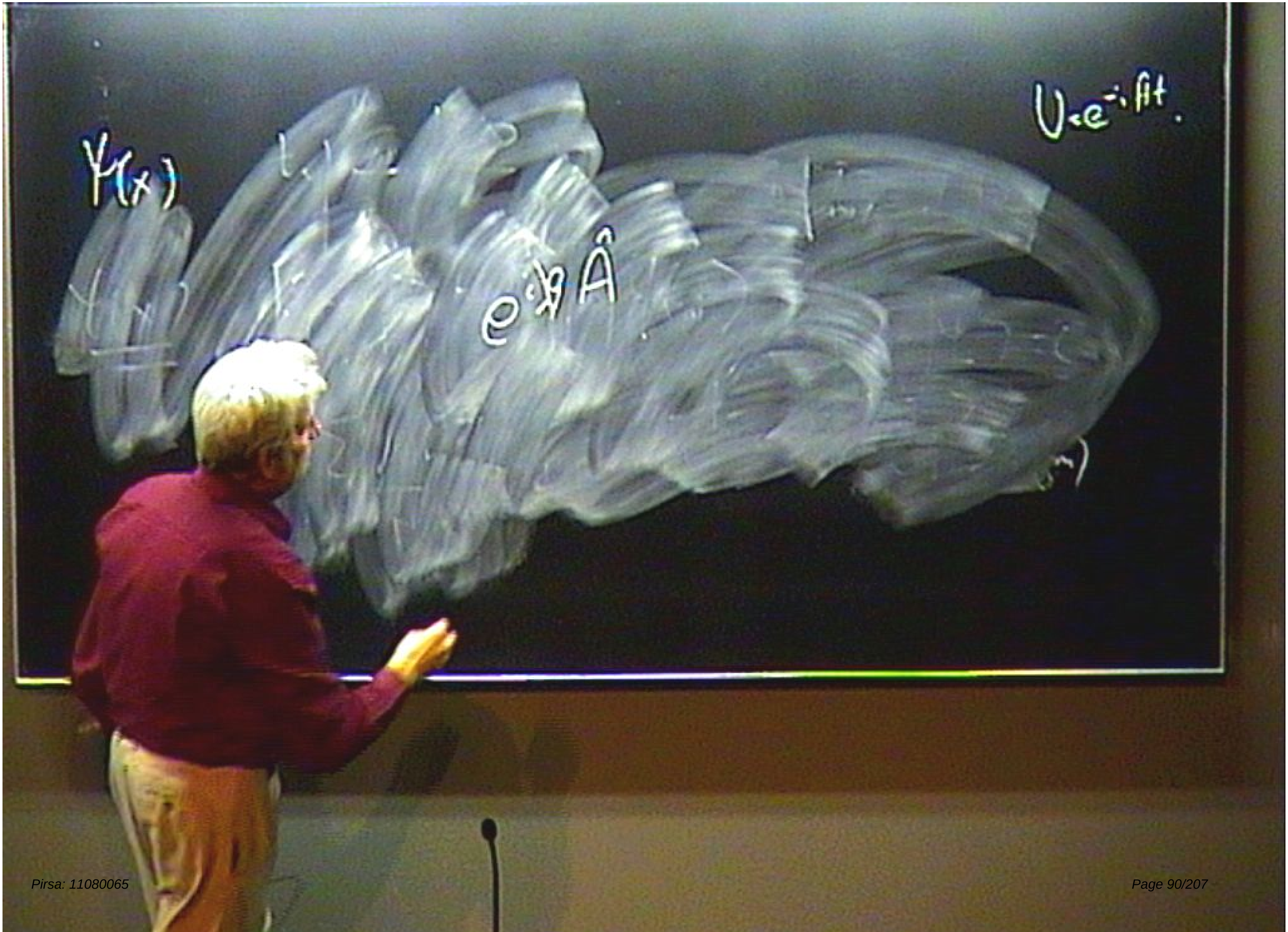


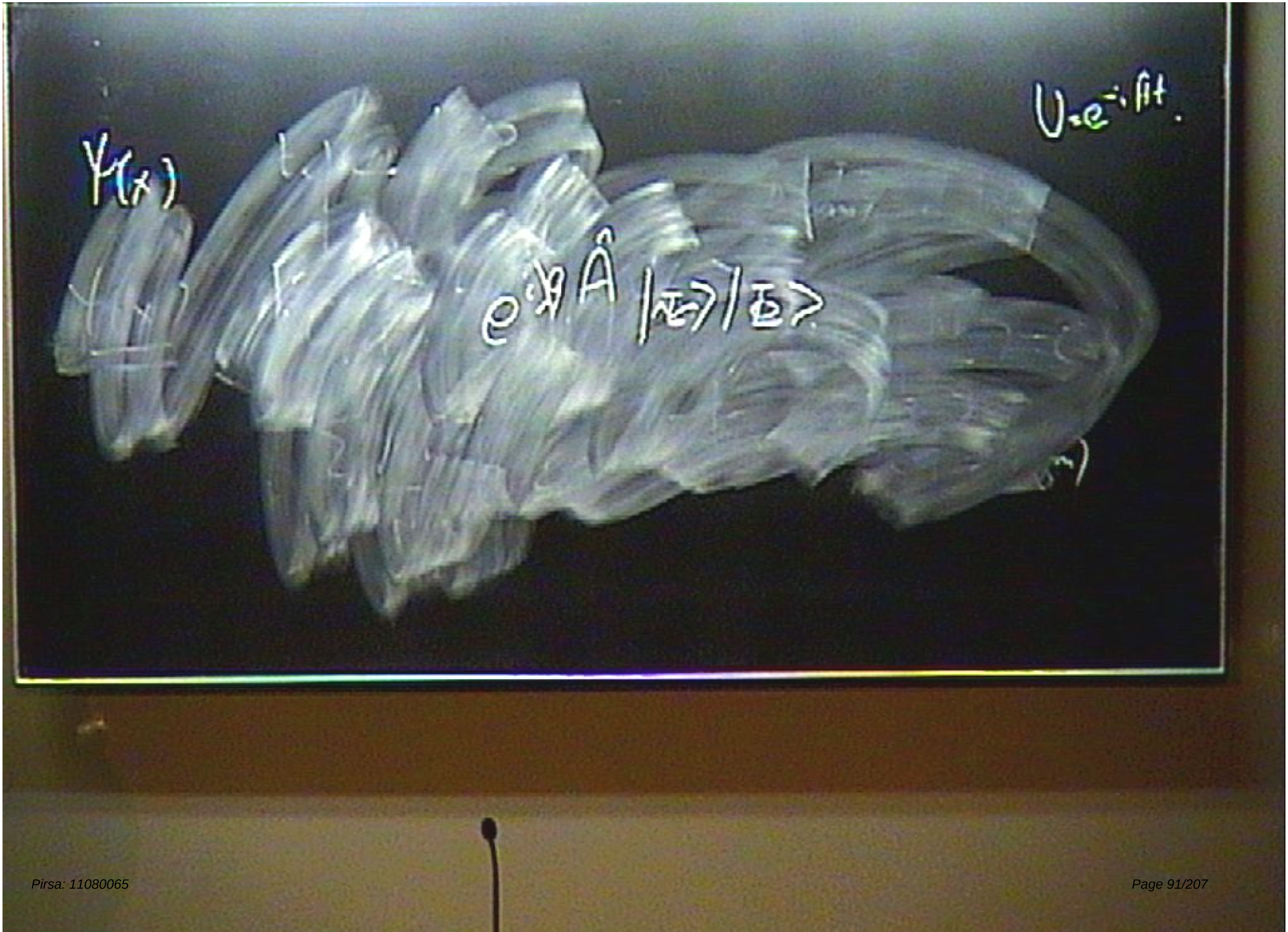


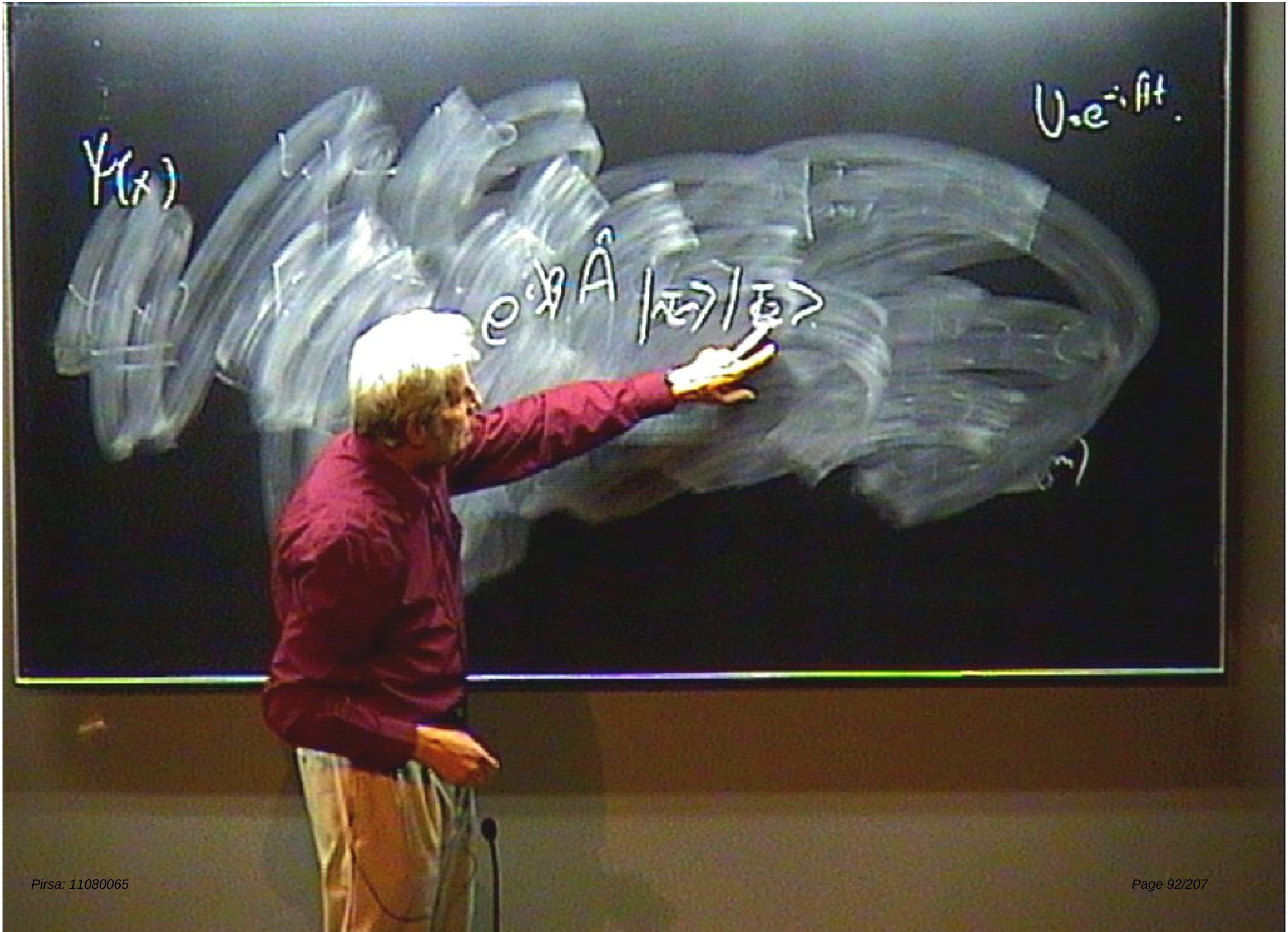


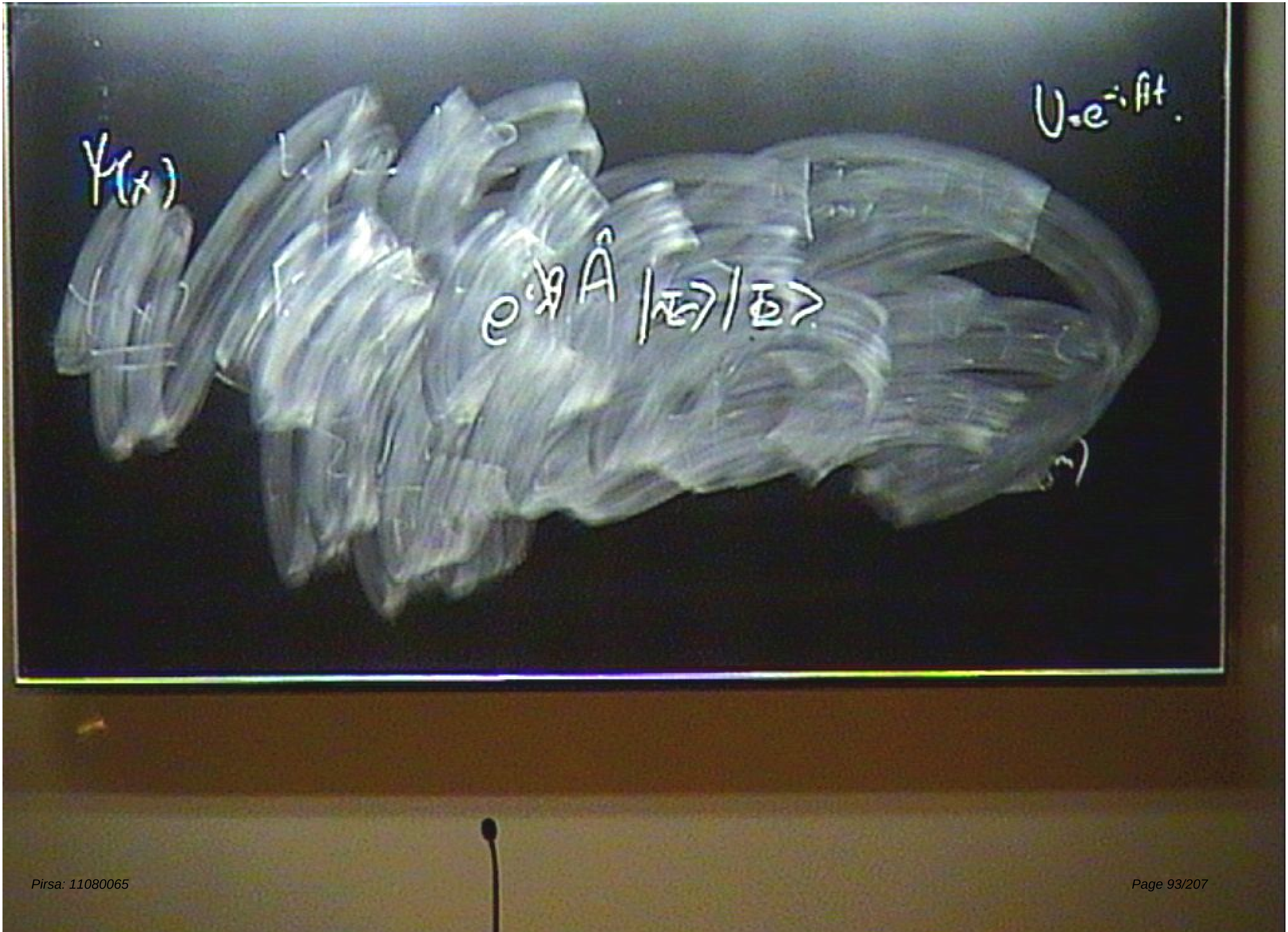

ψ(x)
Â
U=e^{-iĤt}.

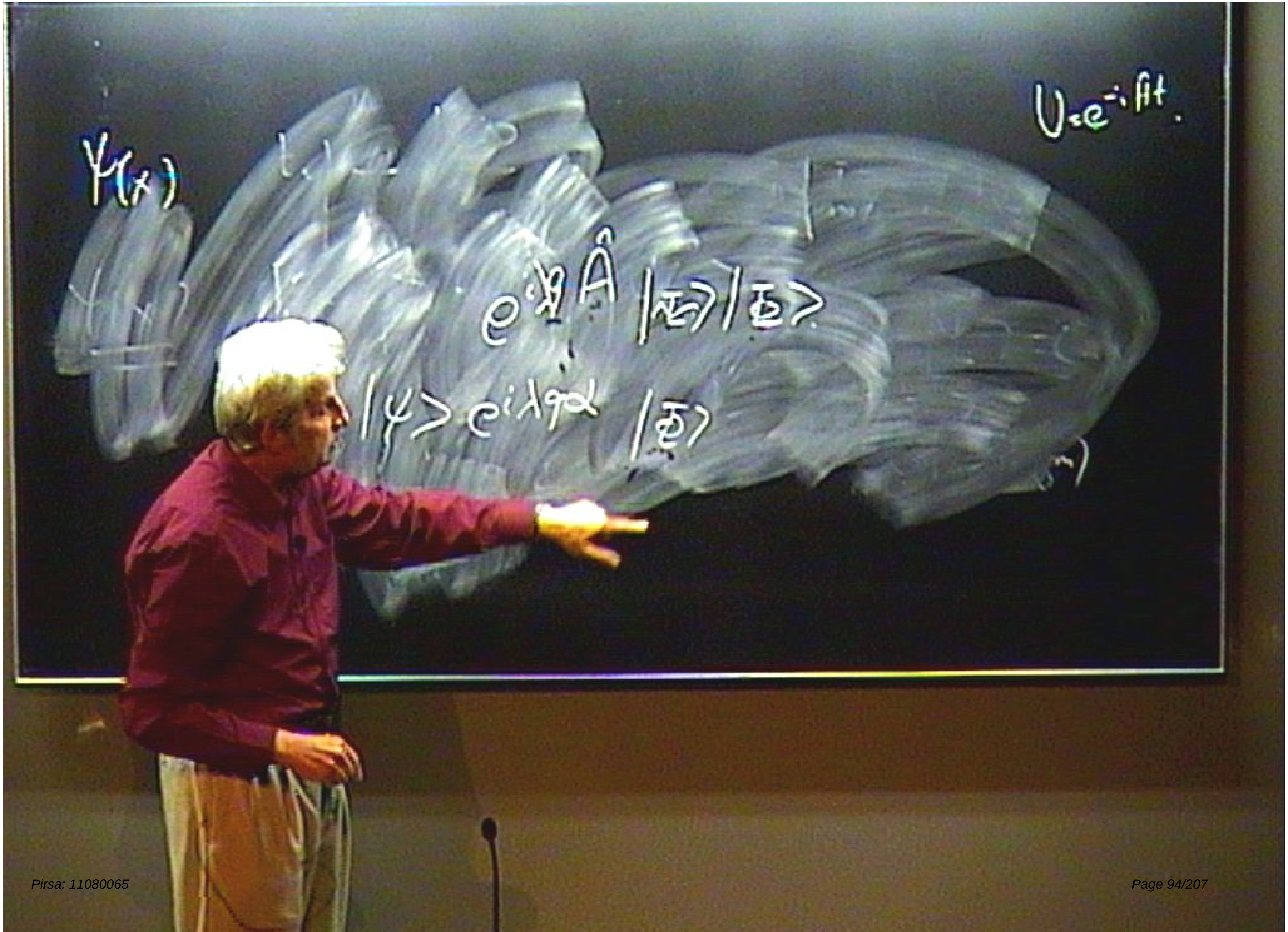

$\psi(x)$
$U = e^{-i\hat{H}t}$.
$e^{iq\hat{A}}$

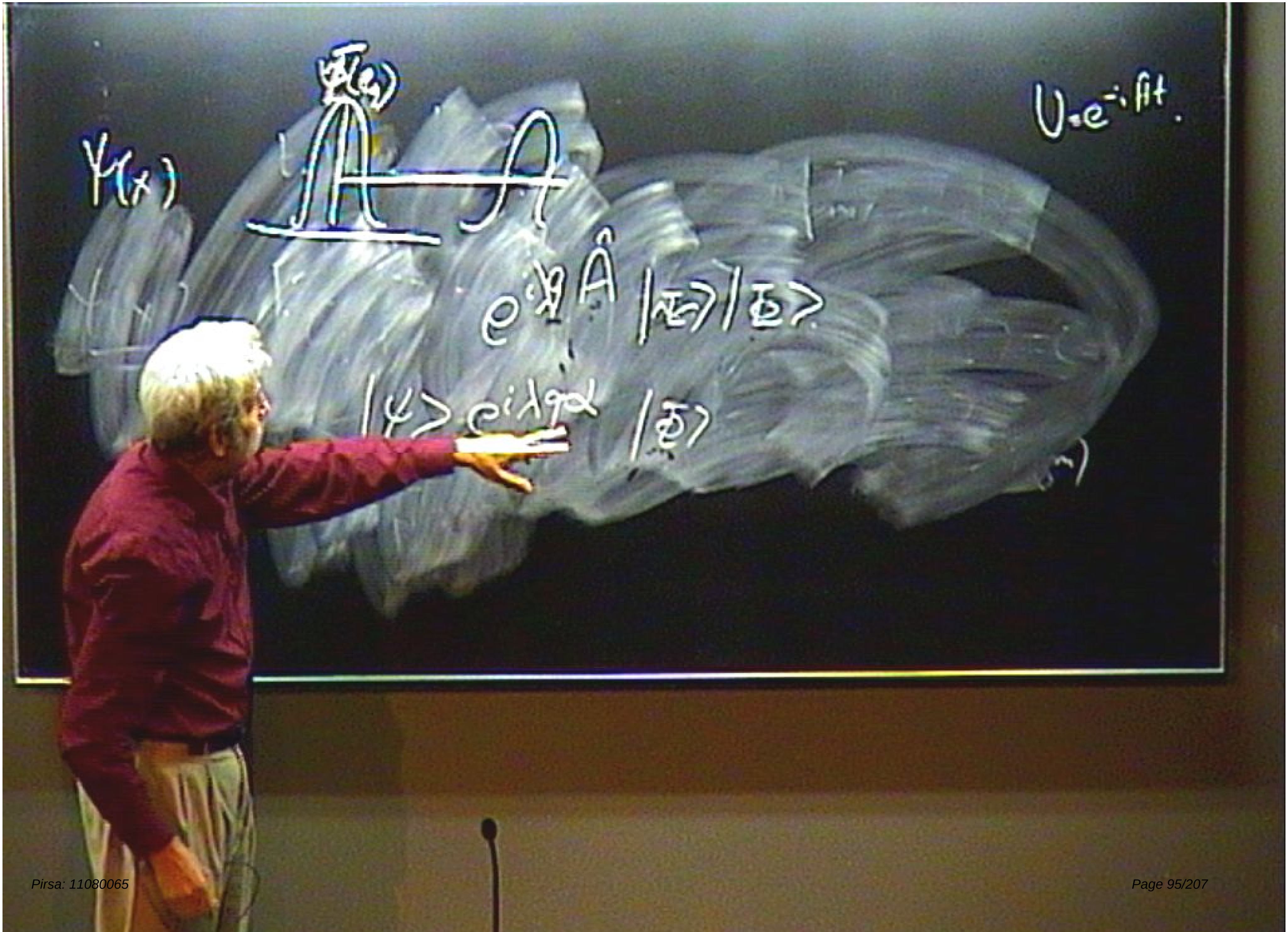

ψ(x)
U=e^{-iĤt}.

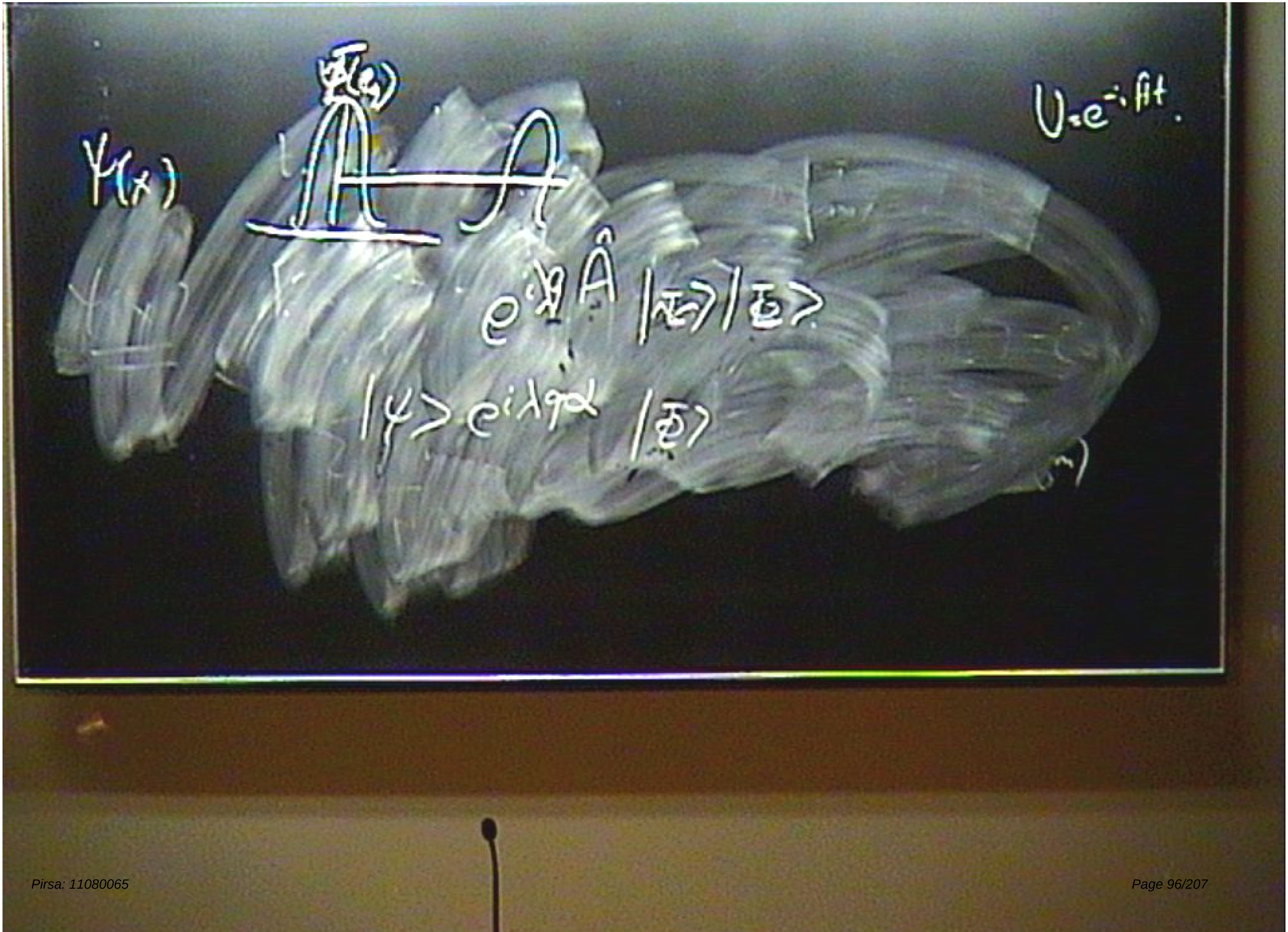

Ψ(x)
U=e^{-iĤt}.

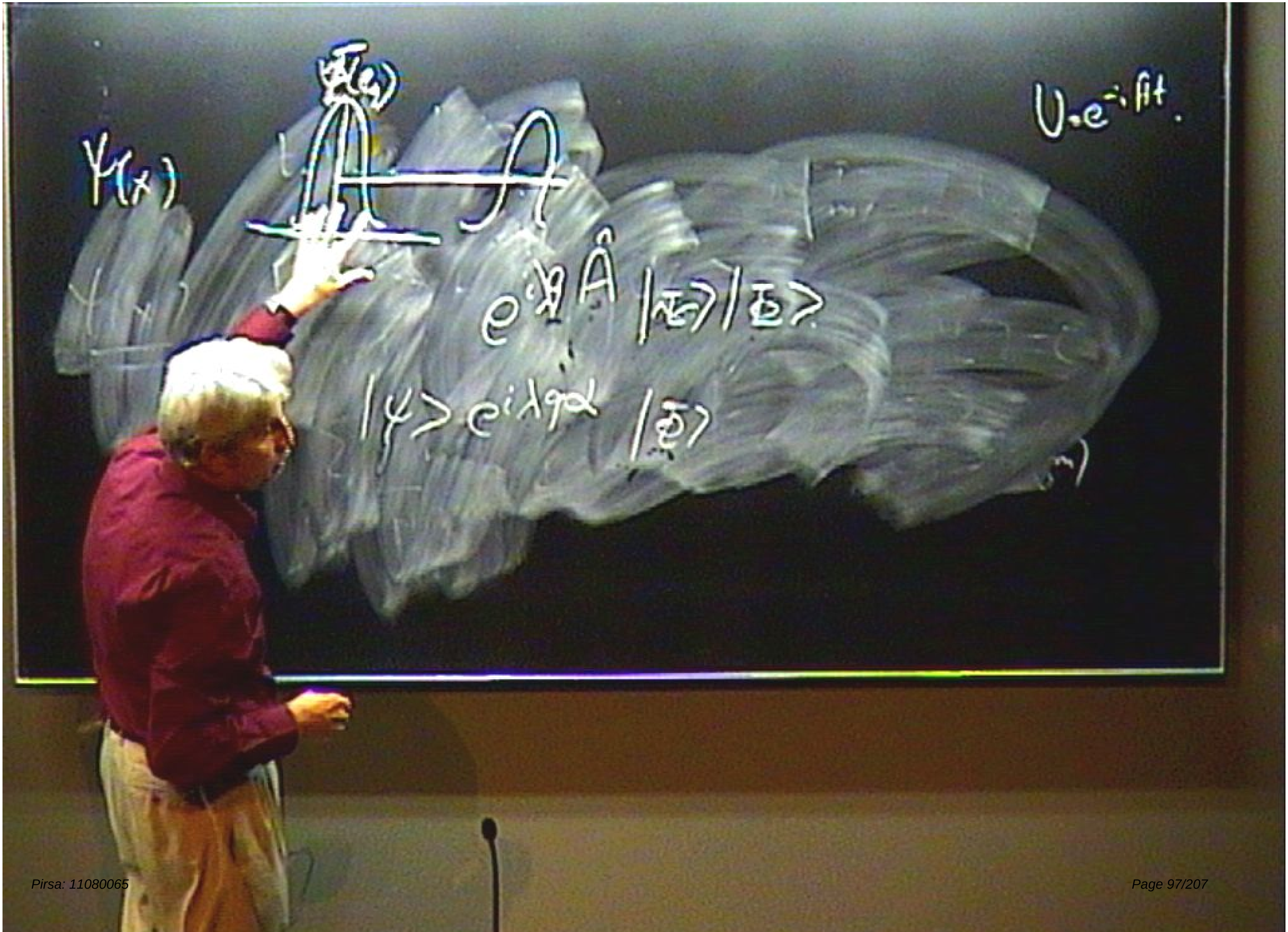

ψ(x)
U = e^{-iĤt}.

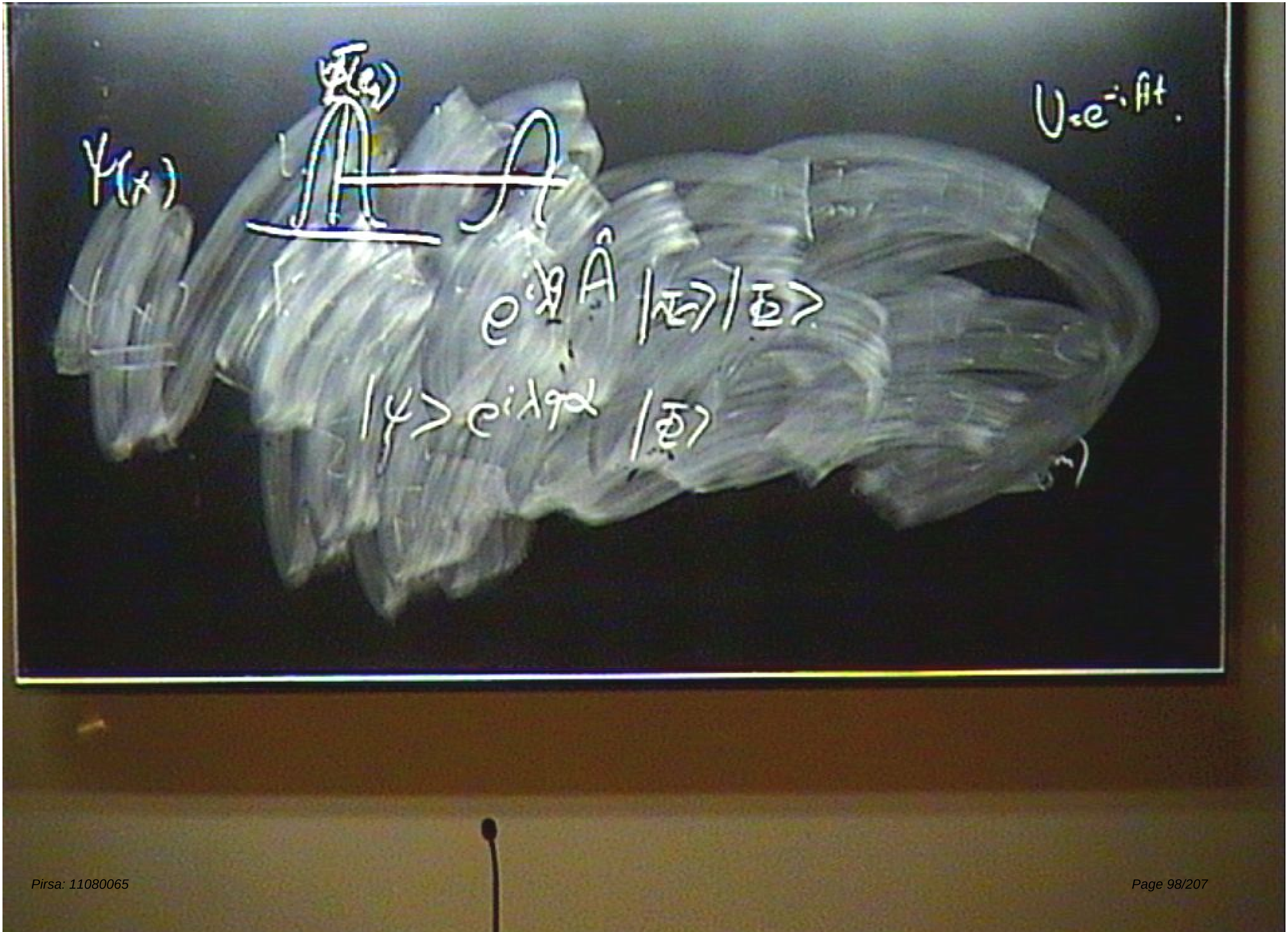

ψ(x)
U=e^{-iĤt}

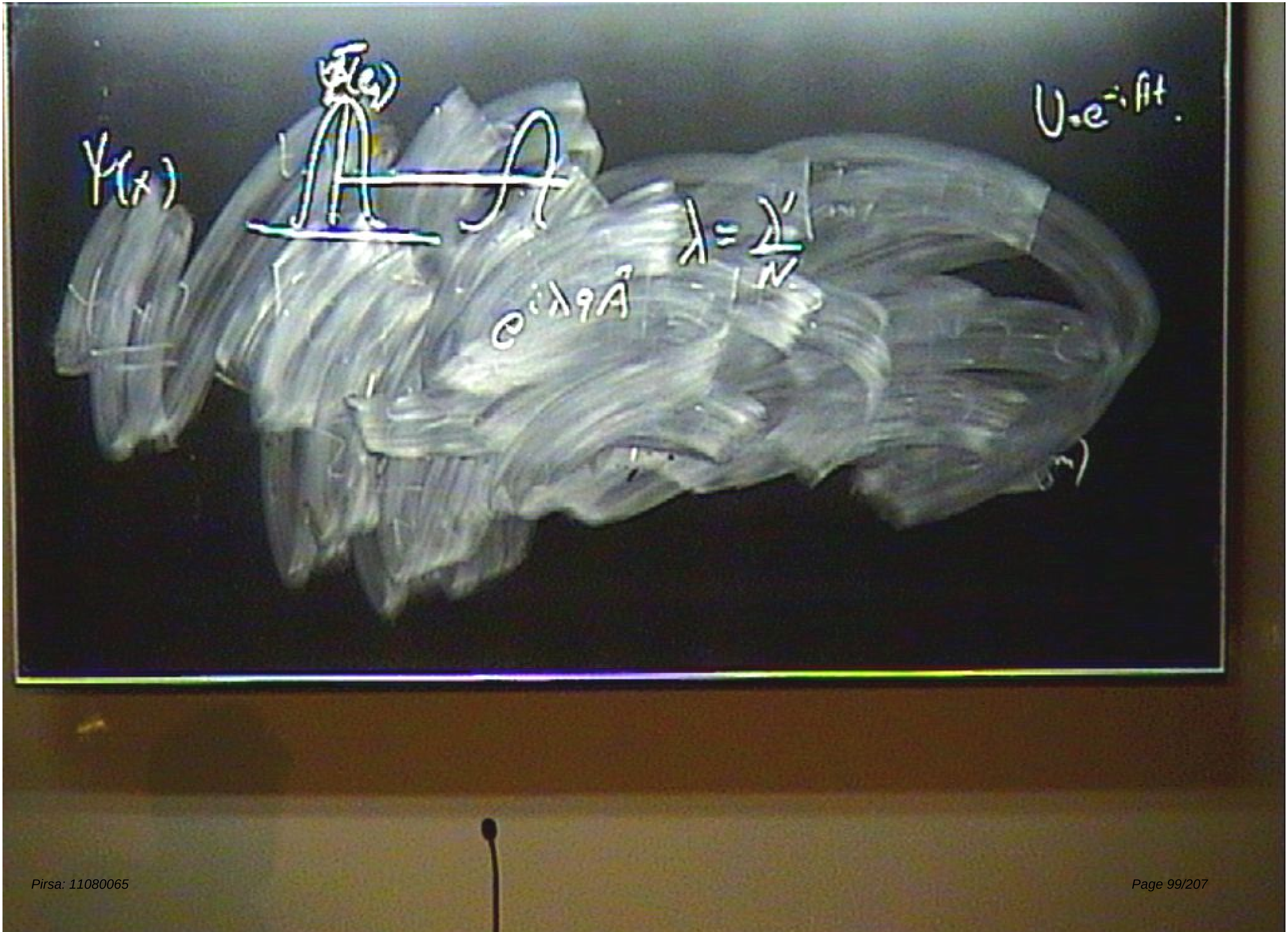

ψ(x)
U=e^{-iĤt}

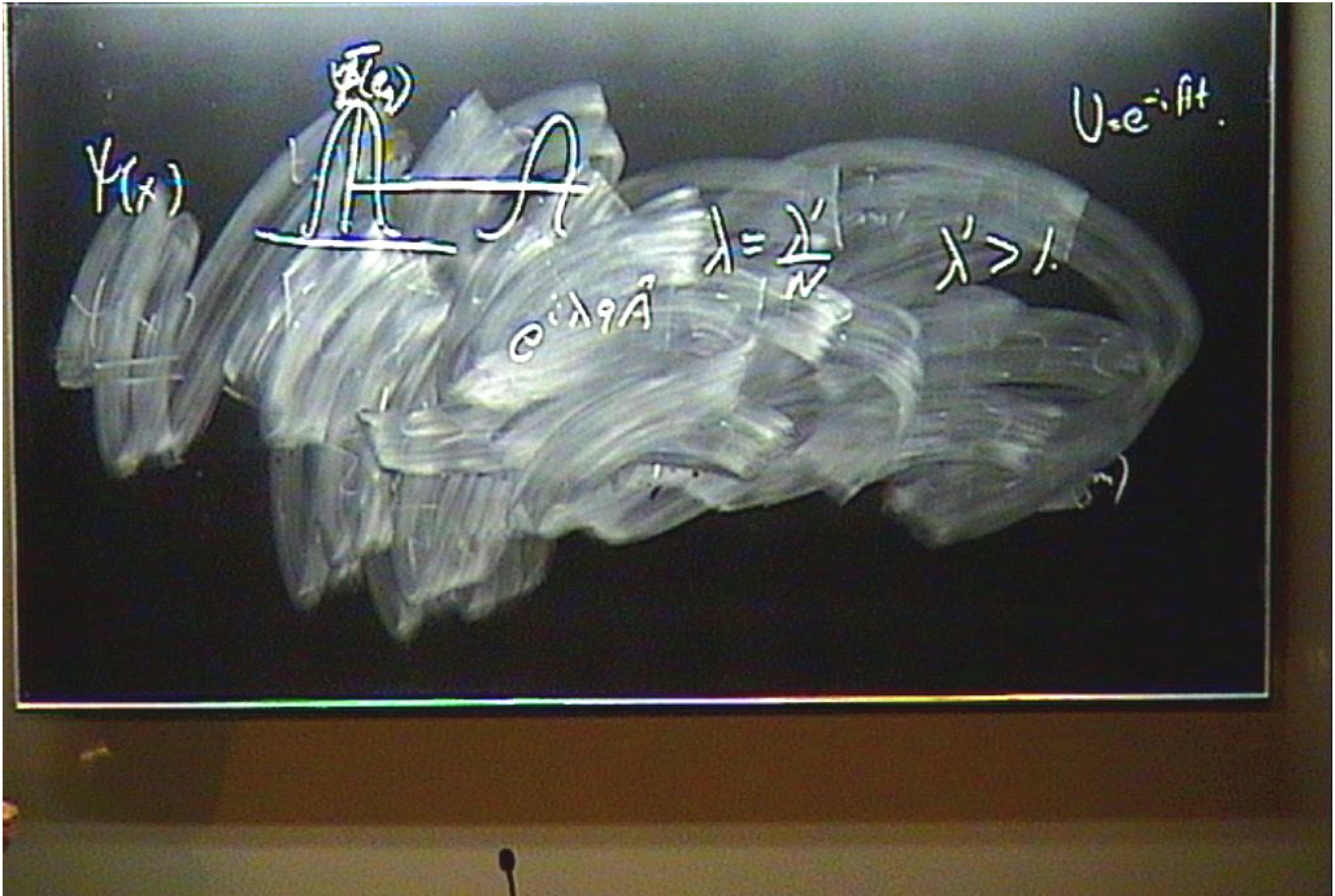

ψ(x)
U=e^{-iĤt}


ψ(x)
U=e^{-iHt}
|ψ>

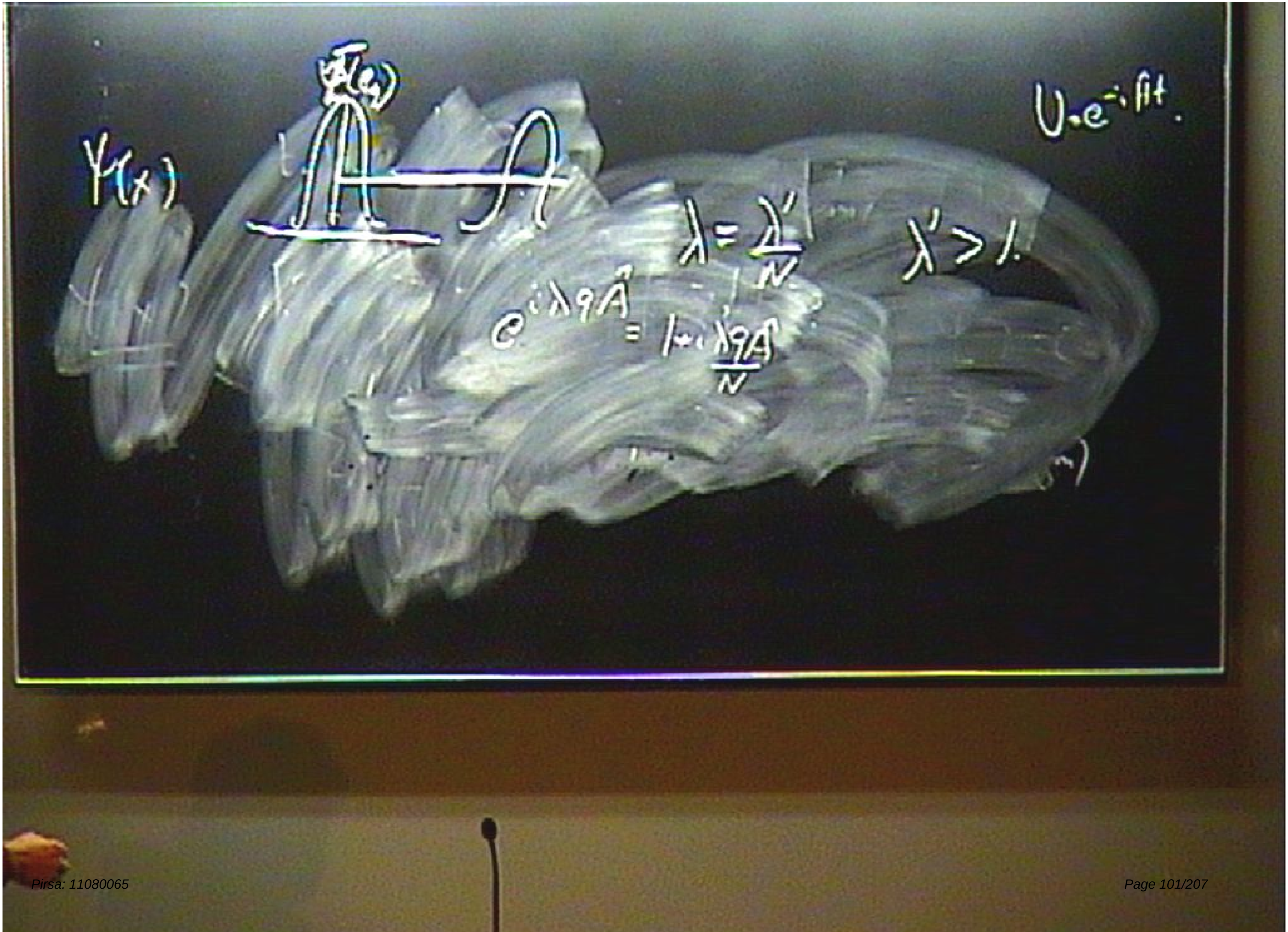

ψ(x)
U=e^{-iĤt}

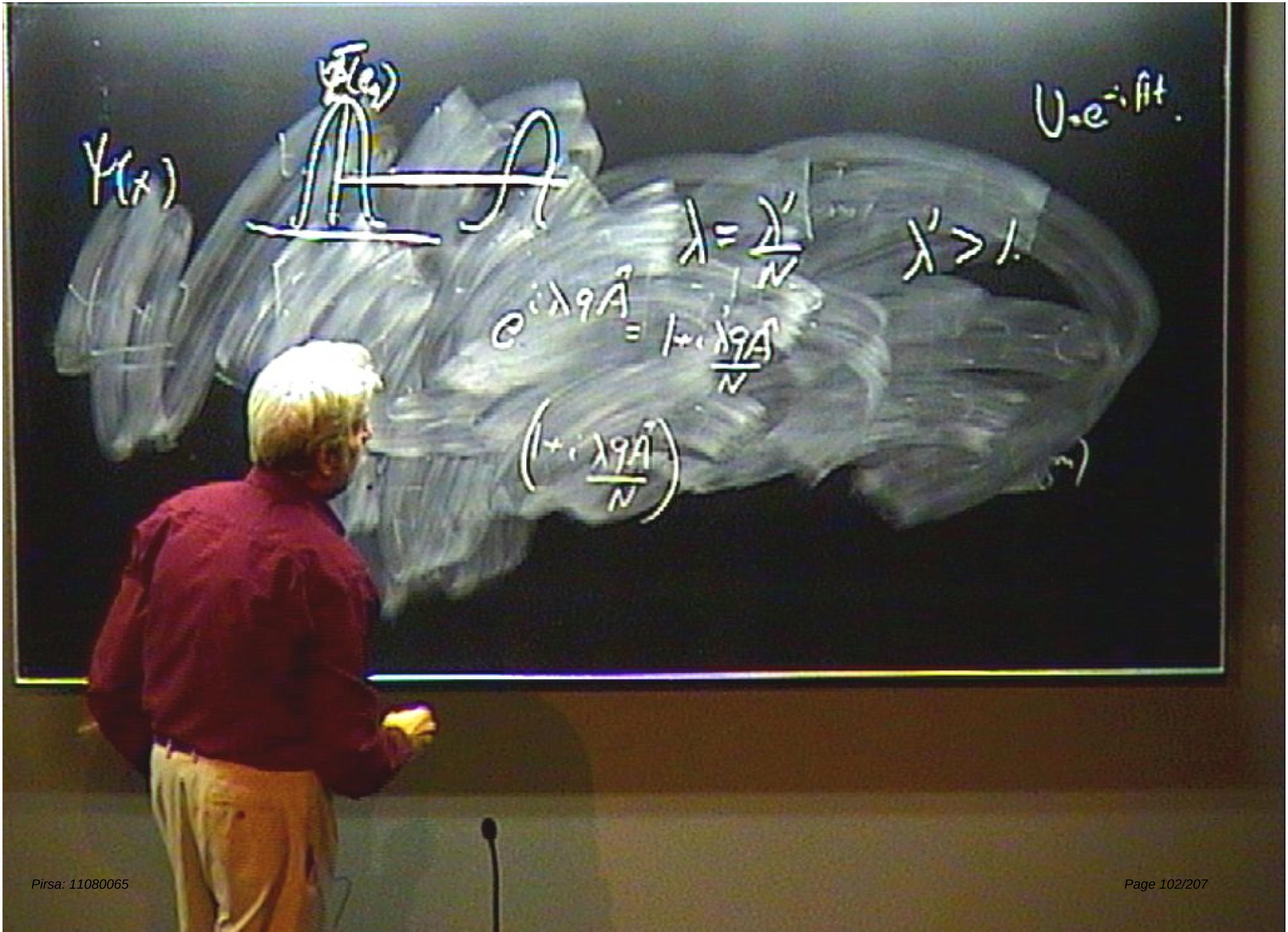


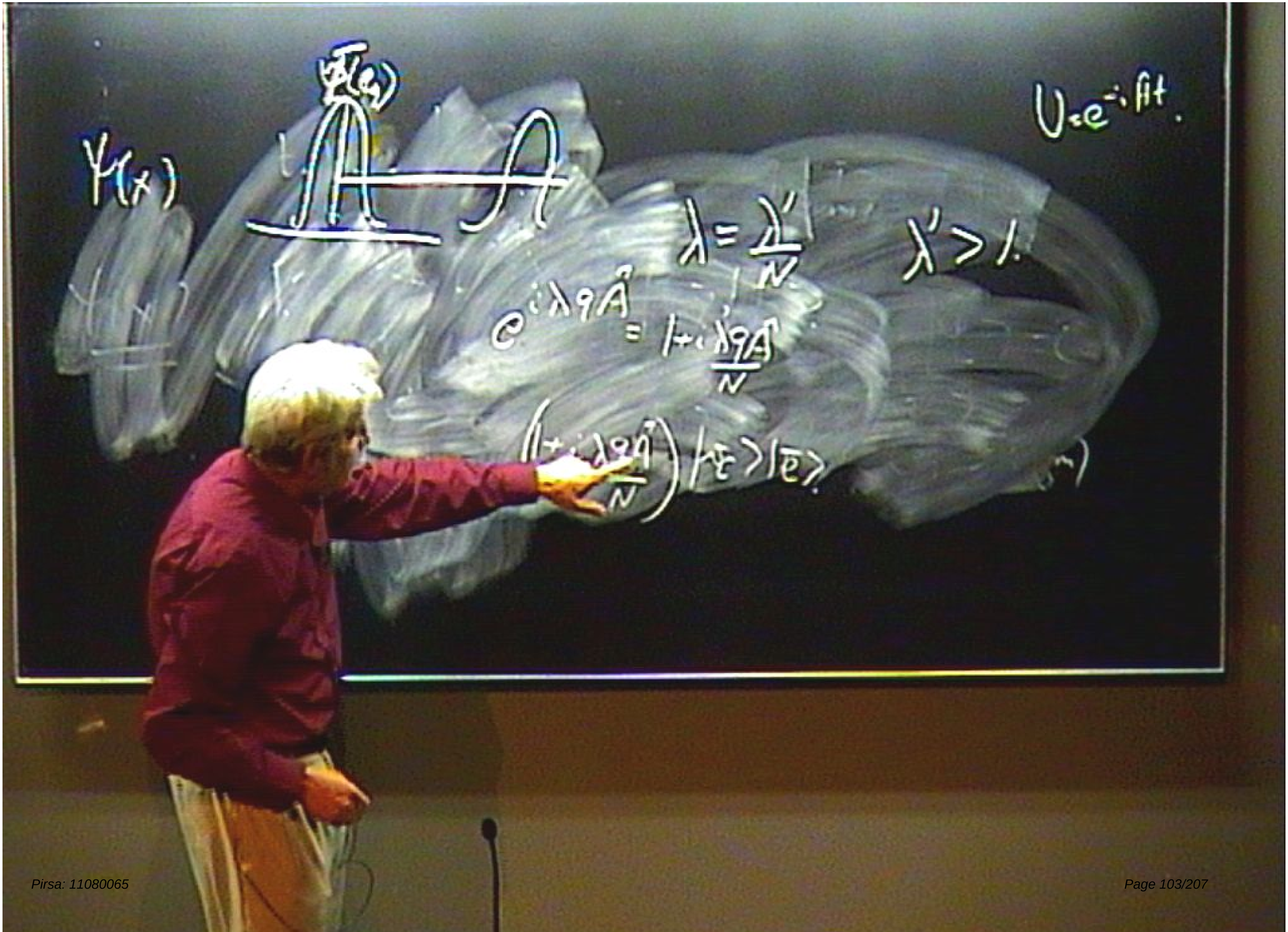

$\psi(x)$
$U = e^{-i\hat{H}t}$.
$\lambda = \frac{\lambda'}{N}$
$e^{i\lambda q\hat{A}}$

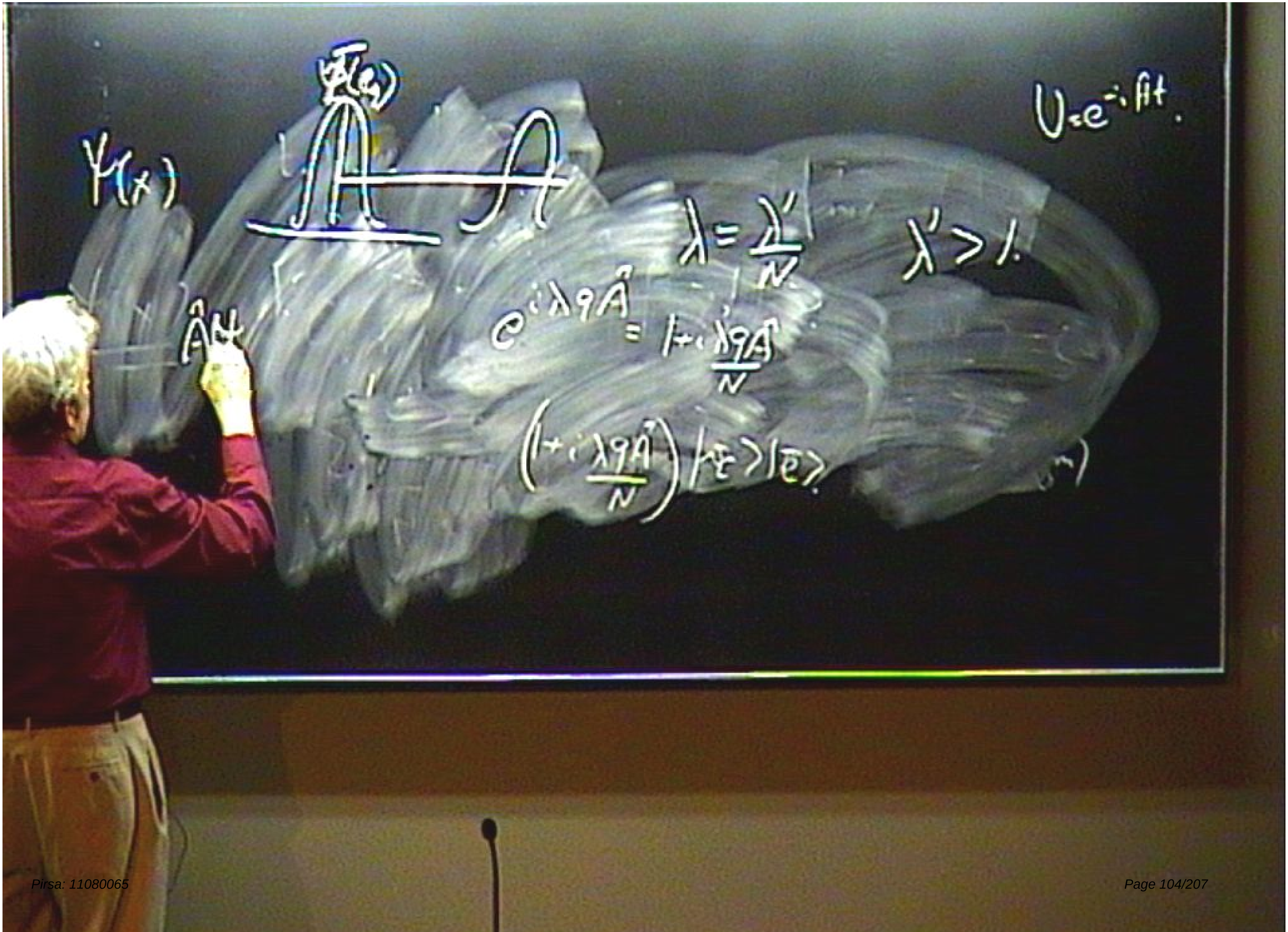


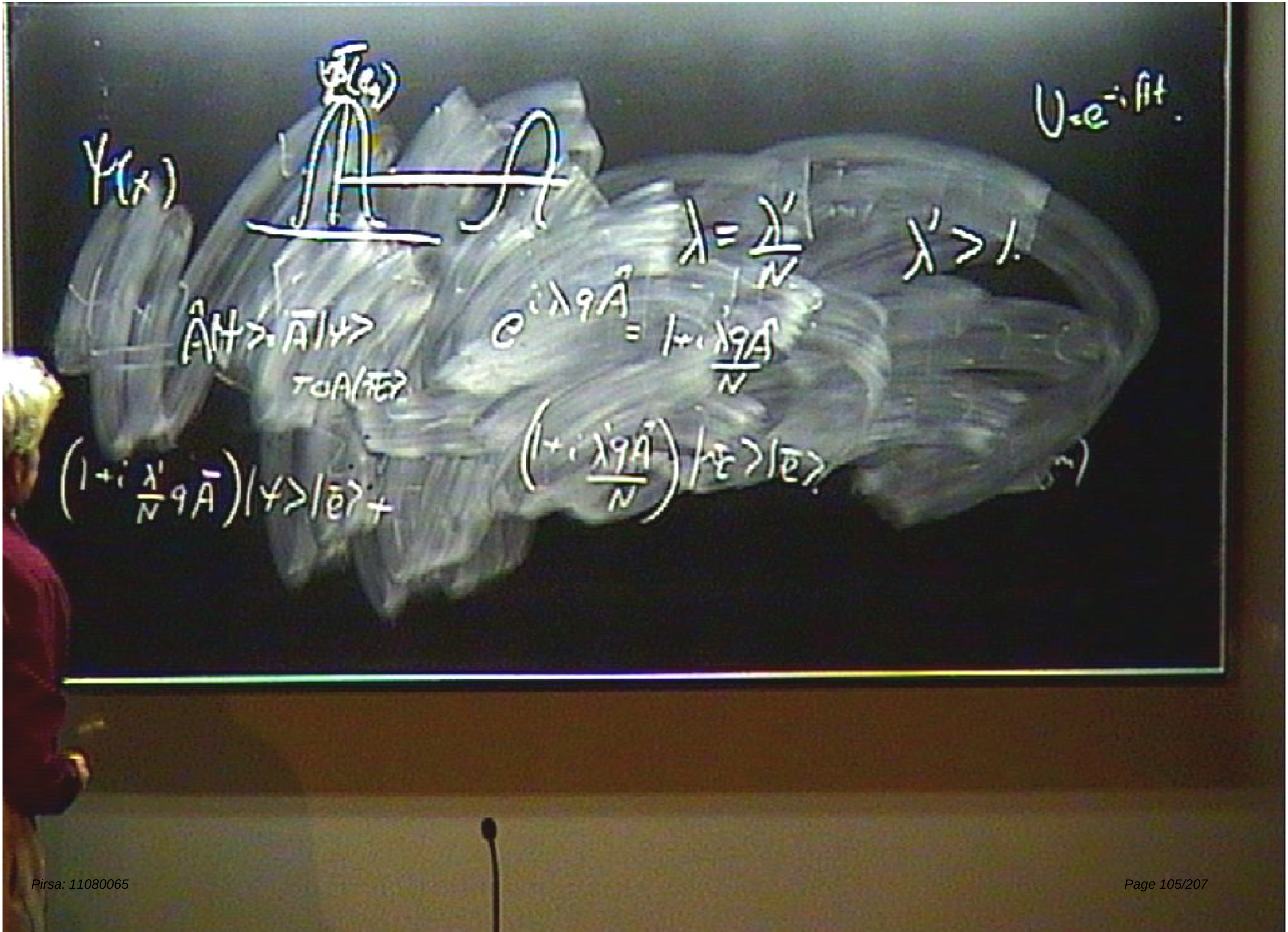
ψ(x)
U = e^{-iĤt}
λ = λ'/N
λ' > 1
e^{iλqÂ}

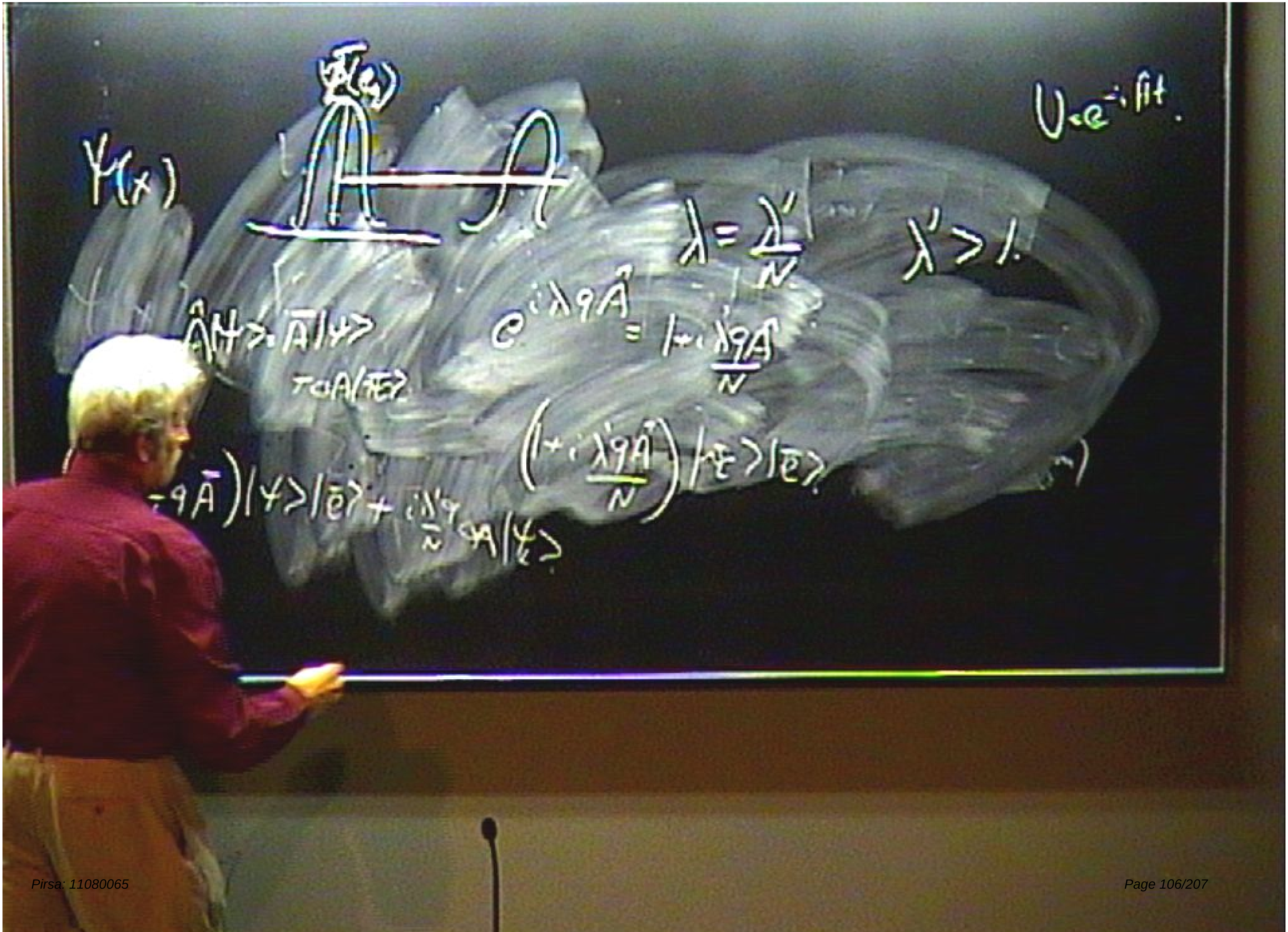

ψ(x)
U = e^{-iHt}
λ = λ'/N
λ' > 1
e^{iλqÂ} = 1 + iλqÂ/N

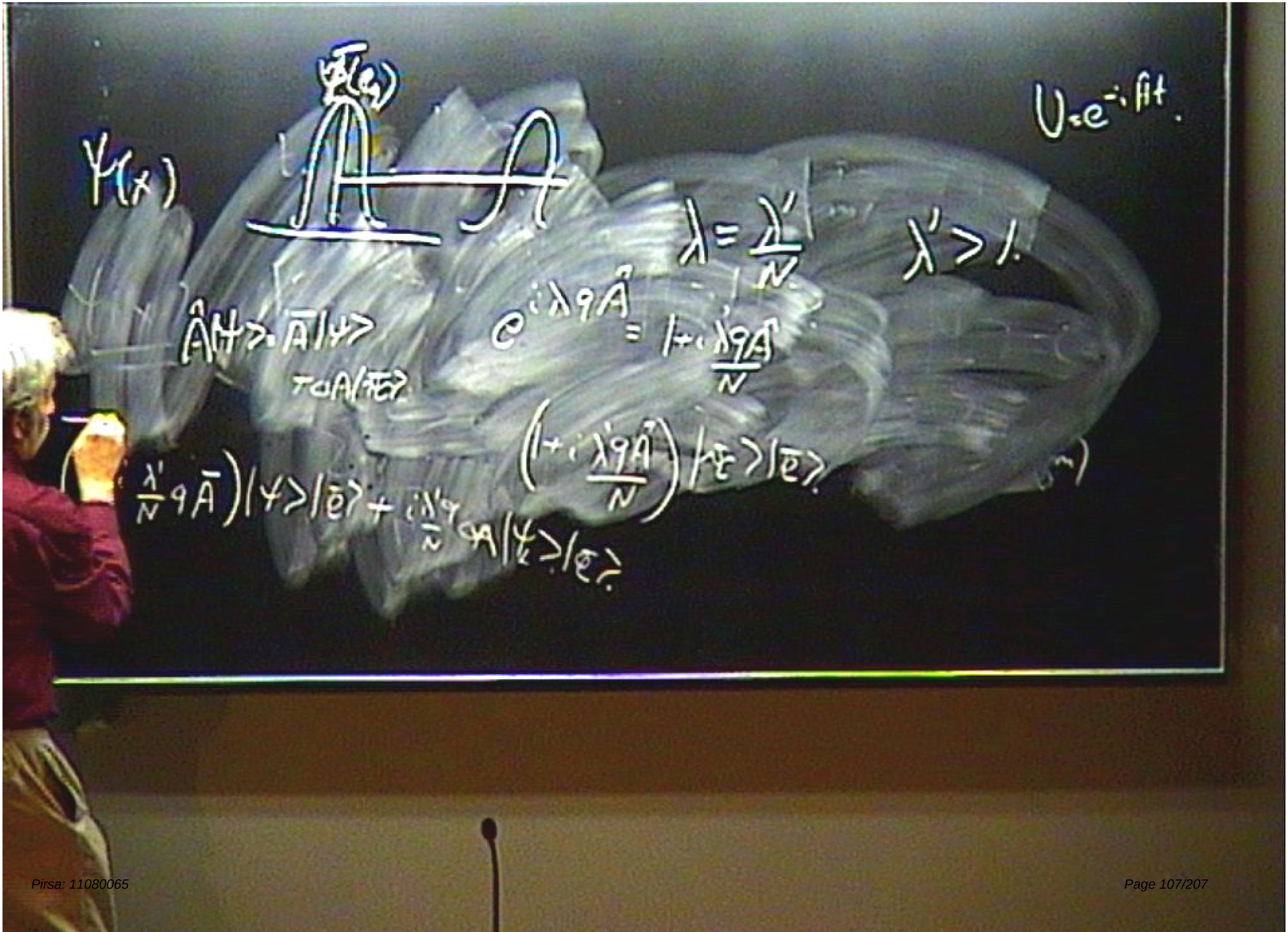

U = e^{-iHt}
λ = λ'/N
λ' > 1
e^{iλqA} = 1 + iλqA/N
(1 + iλqA/N)

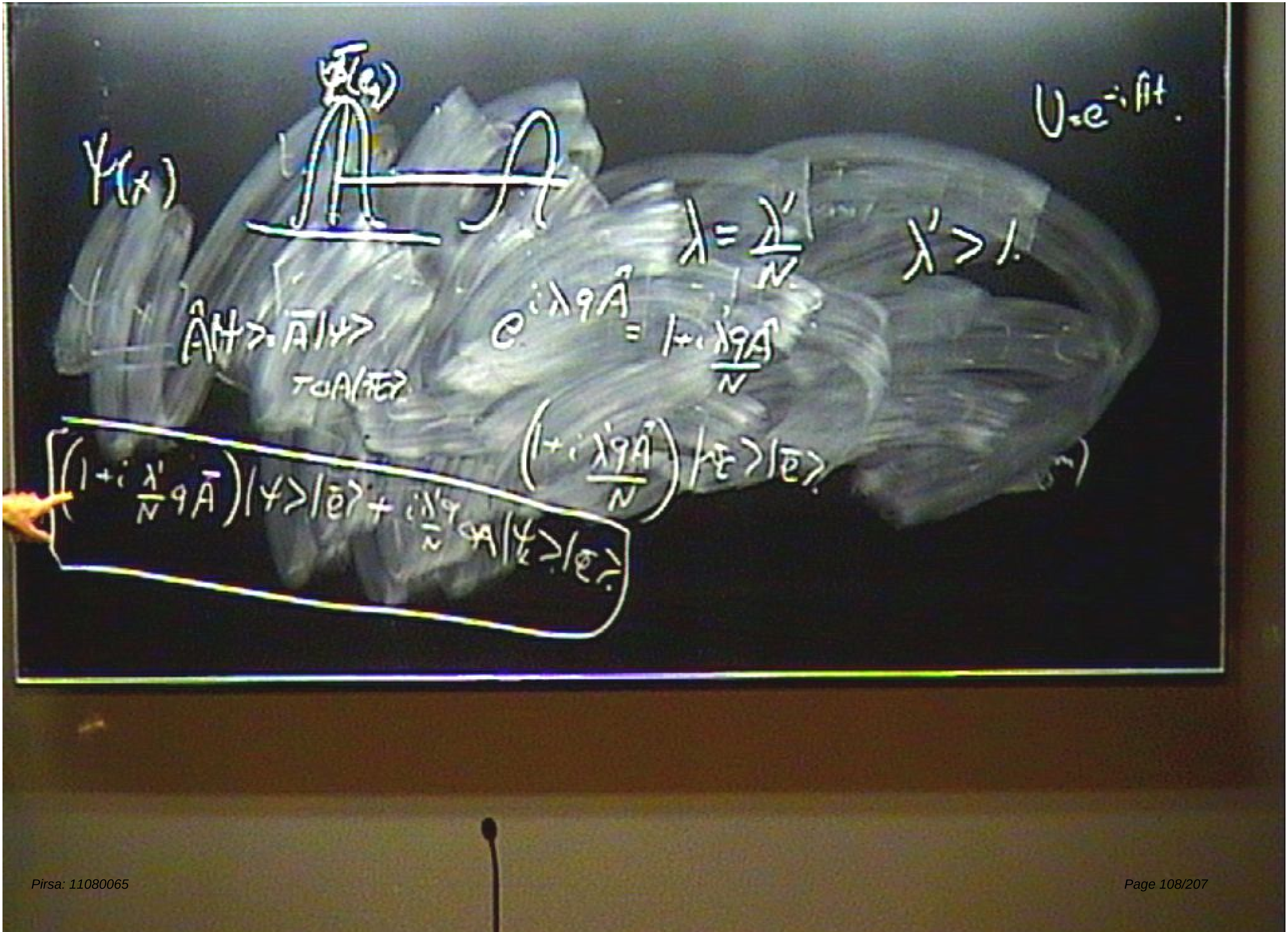

Ψ(x)
U = e^{-iĤt}
λ = λ'/N
λ' > λ
e^{iλqÂ} = 1 + iλqÂ/N
(1 + iλqÂ/N)|ε>|e>


ψ(x)
U = e^{-iĤt}.
λ = λ'/N
λ' > 1.
e^{iλqÂ} = 1 + iλqÂ/N
(1 + iλqÂ/N)|ε>|e>.

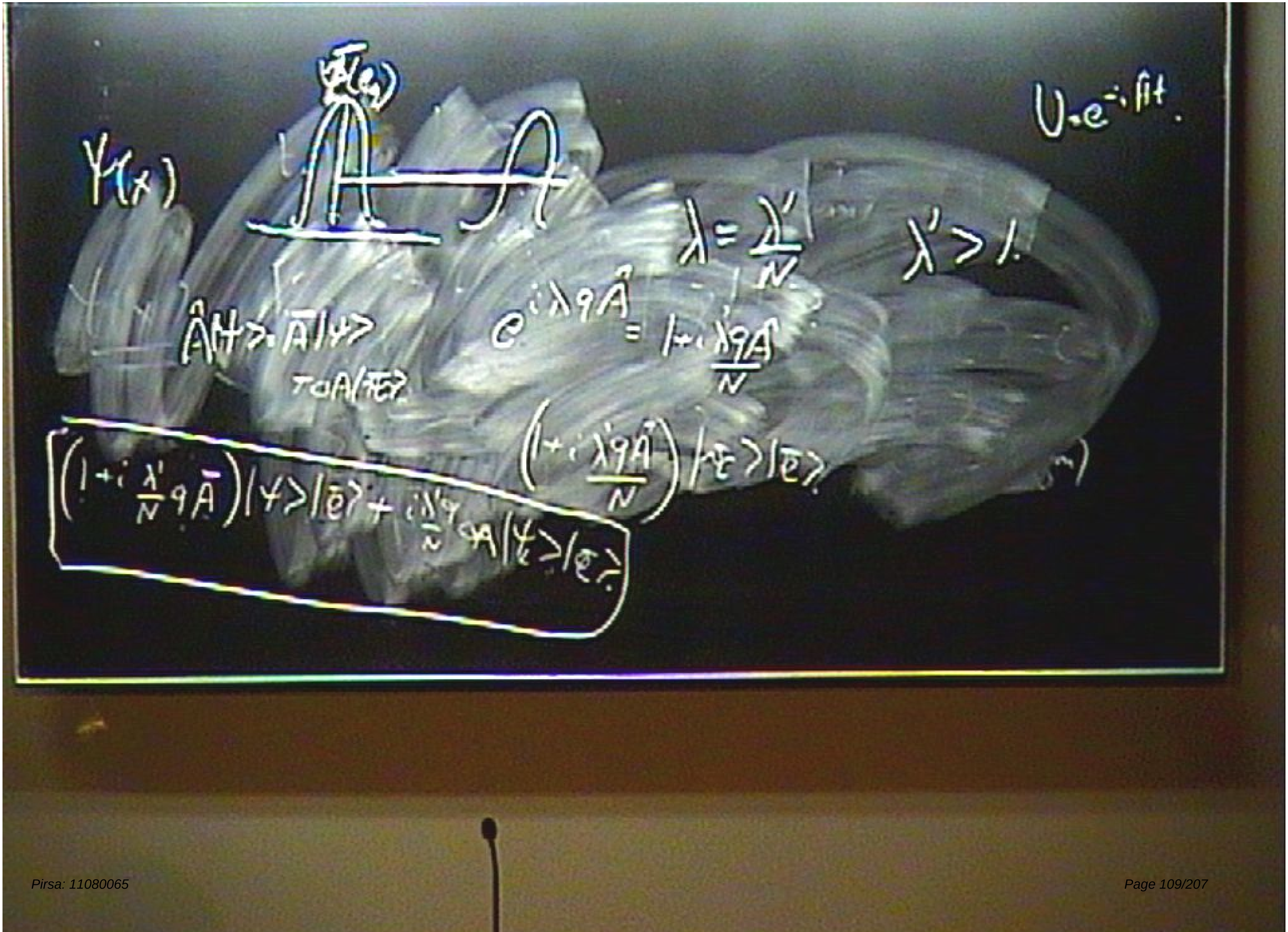

λ = λ'/N
λ' > 1
(1 + i λ'/N q Ā) |ψ>|e> +

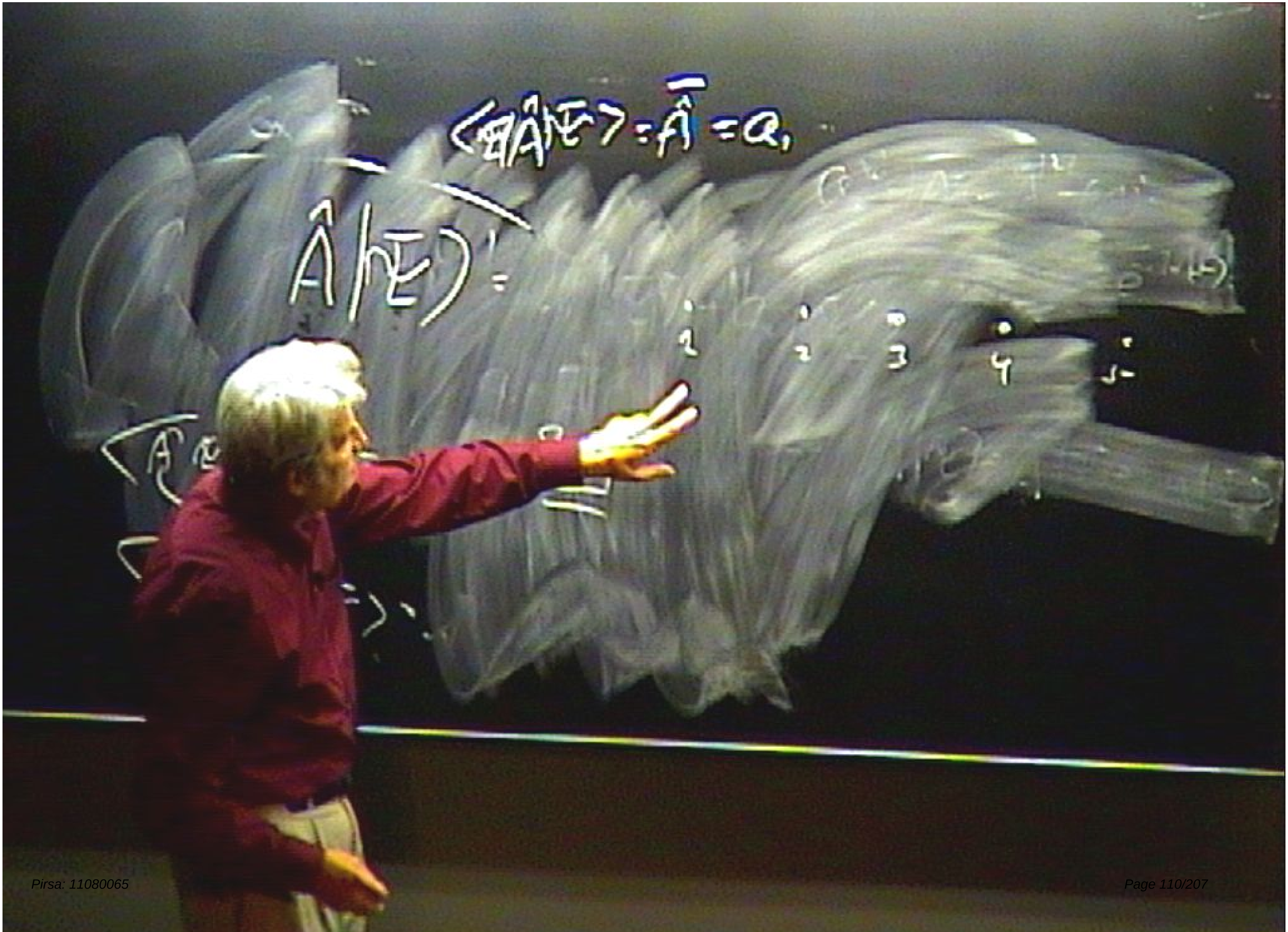

λ = λ'/N
λ' > 1

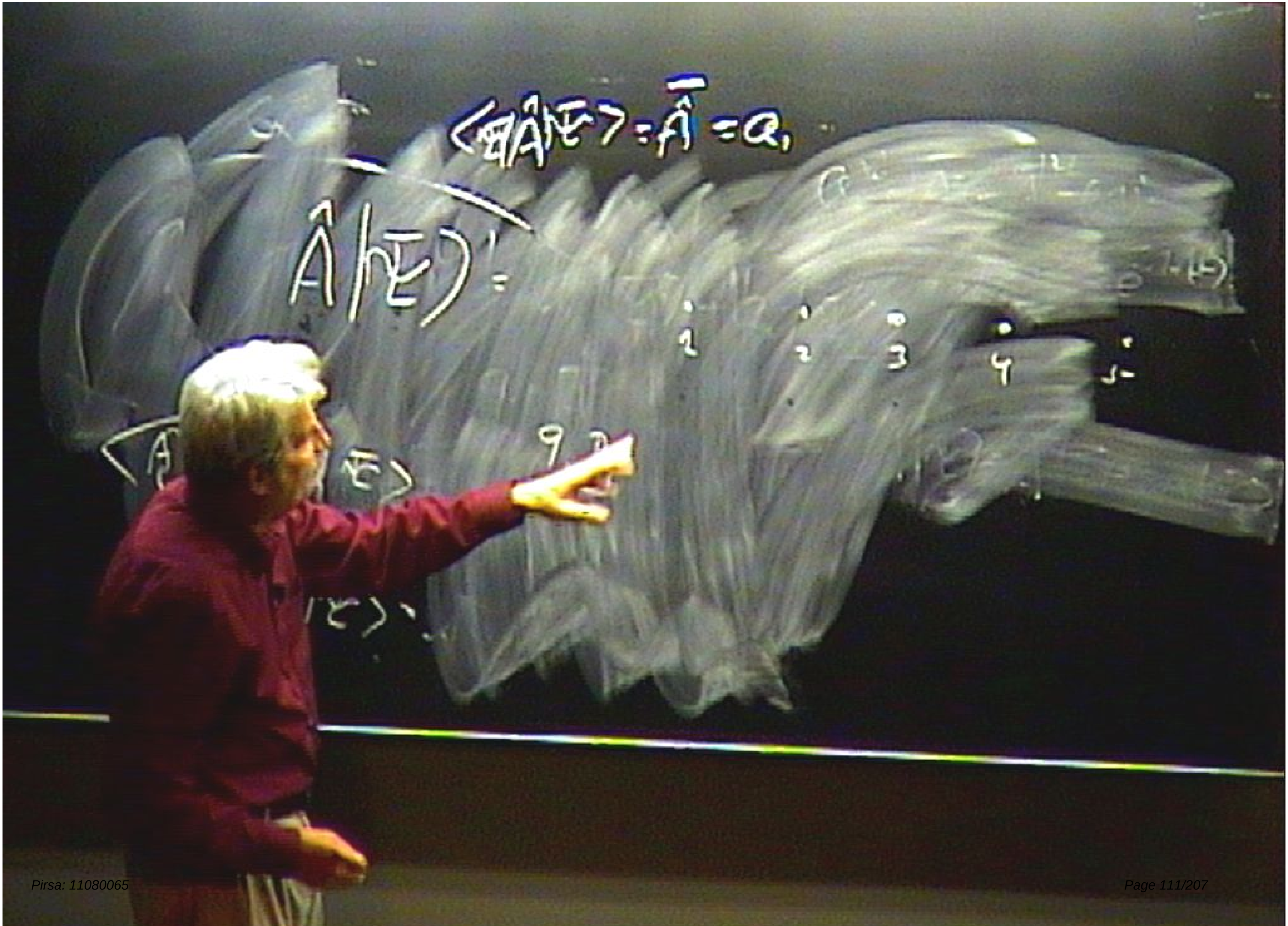

U=e^{-iHt}
λ = λ'/N
λ' > 1

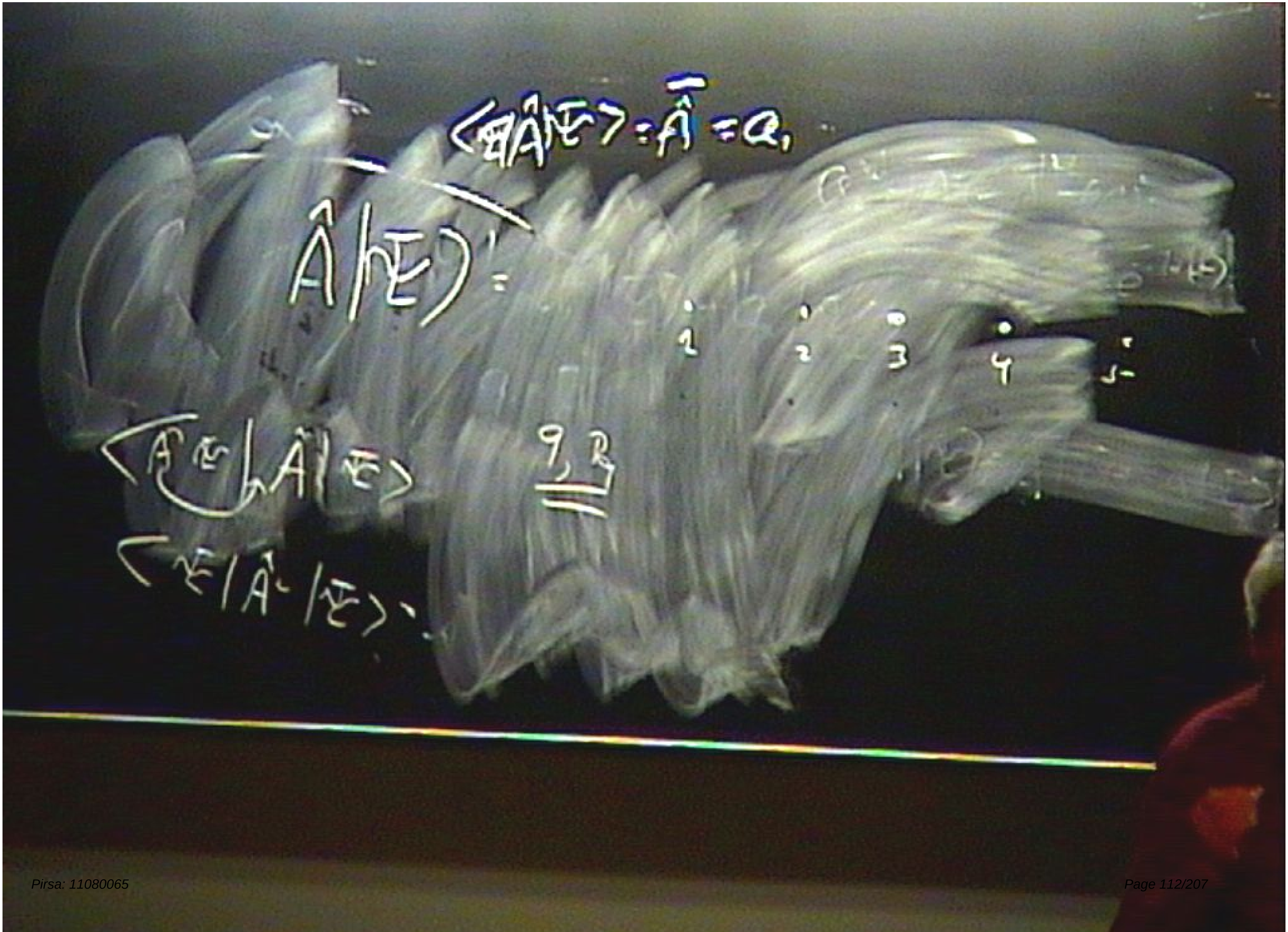


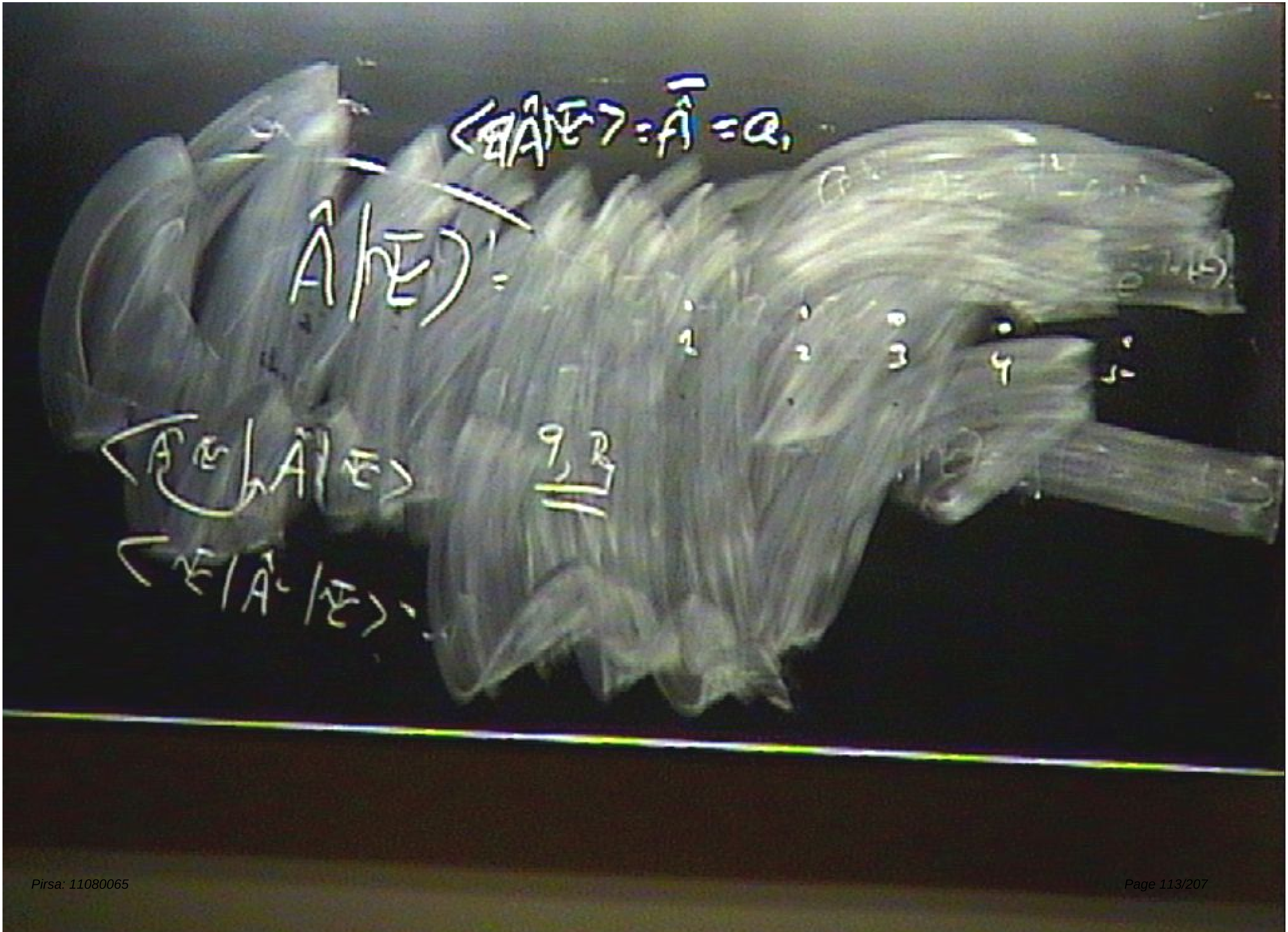
Ψ(x)
U = e^{-iHt}
λ = λ'/N
λ' > 1
e^{iλqÂ} = 1 + iλ'qÂ/N

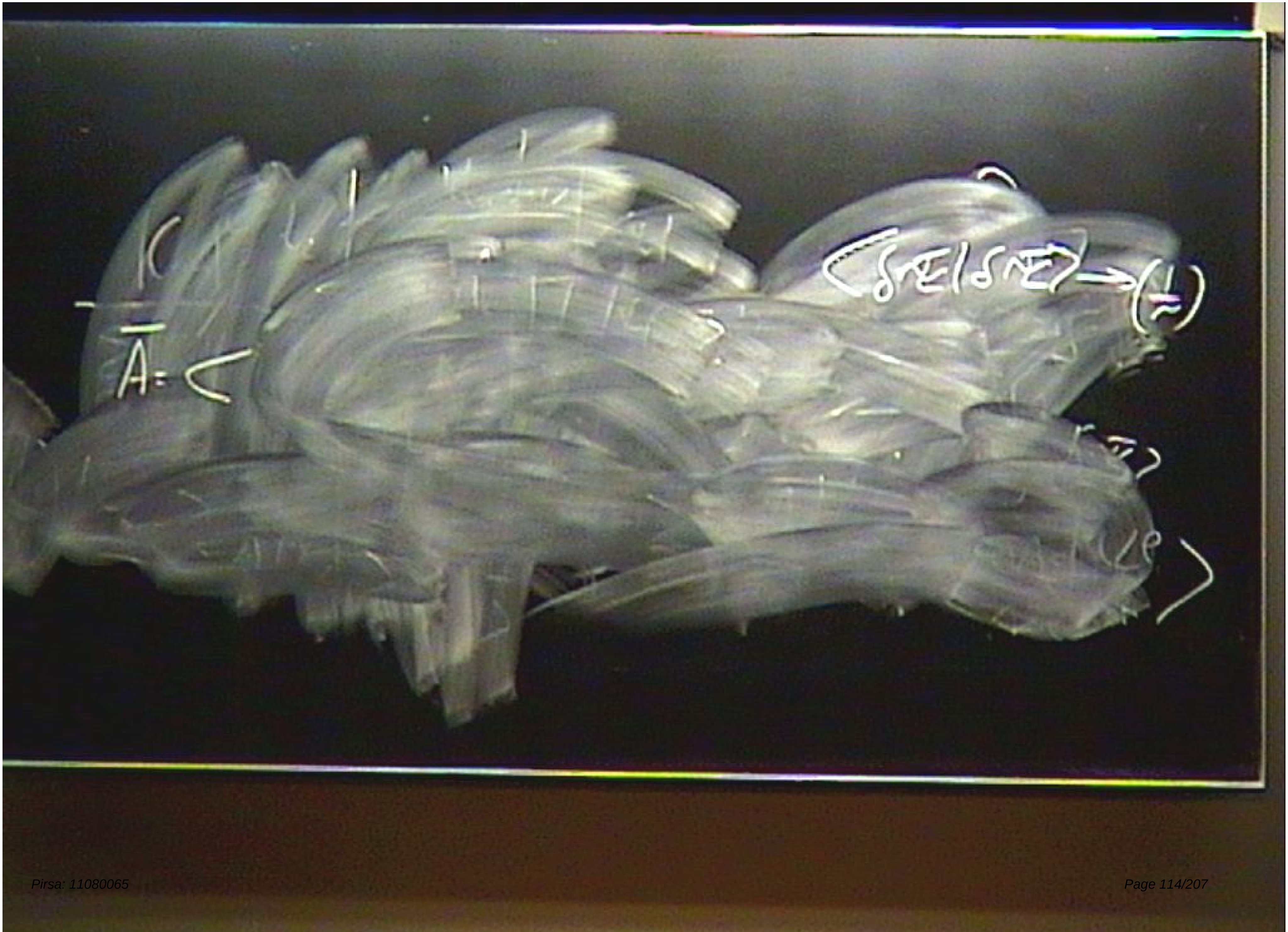

ψ(x)
U = e^{-iHt}
λ = λ'/N
λ' > 1
Â|ψ> = Ā|ψ>
e^{iλqÂ} = 1 + i λ'qÂ/N

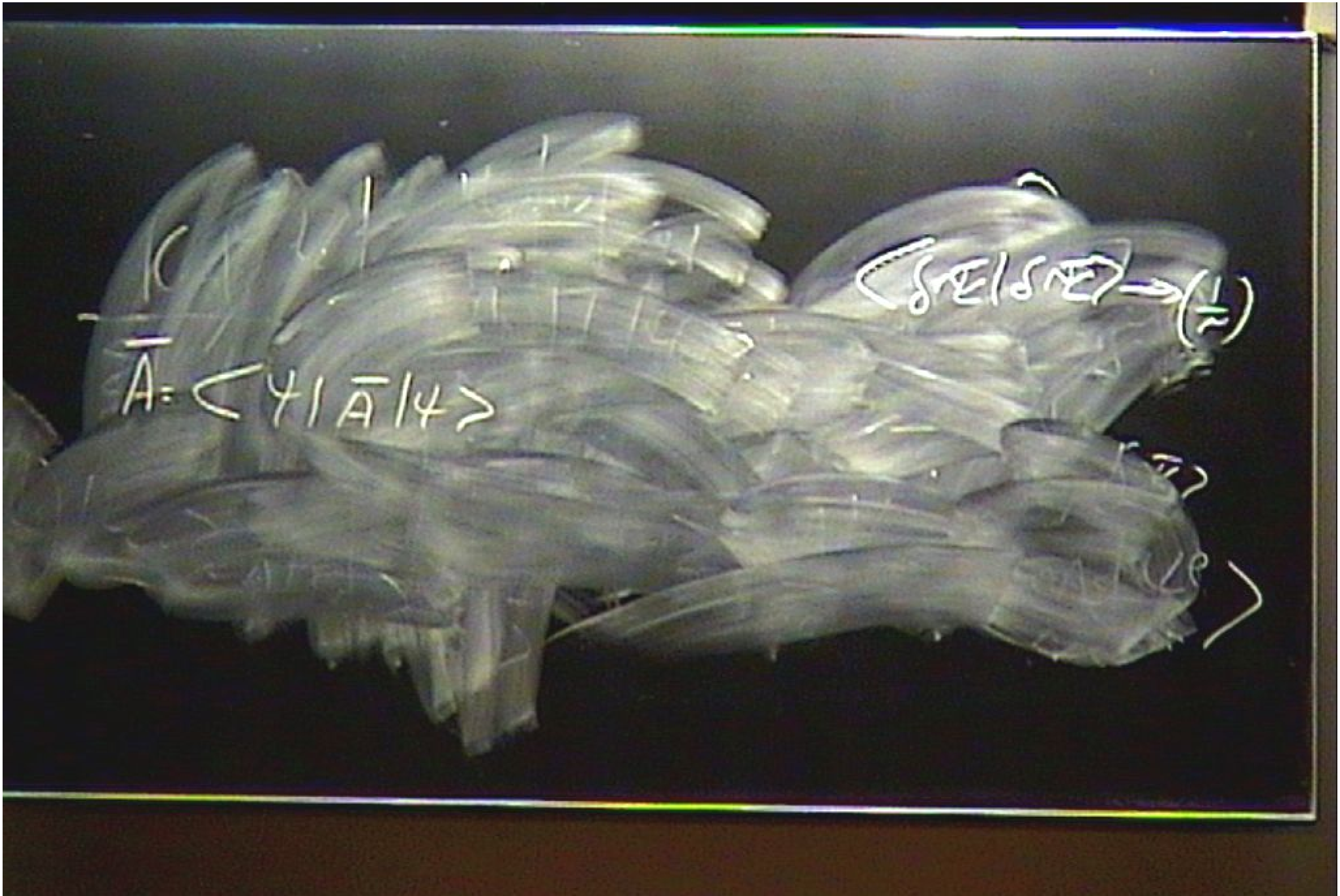


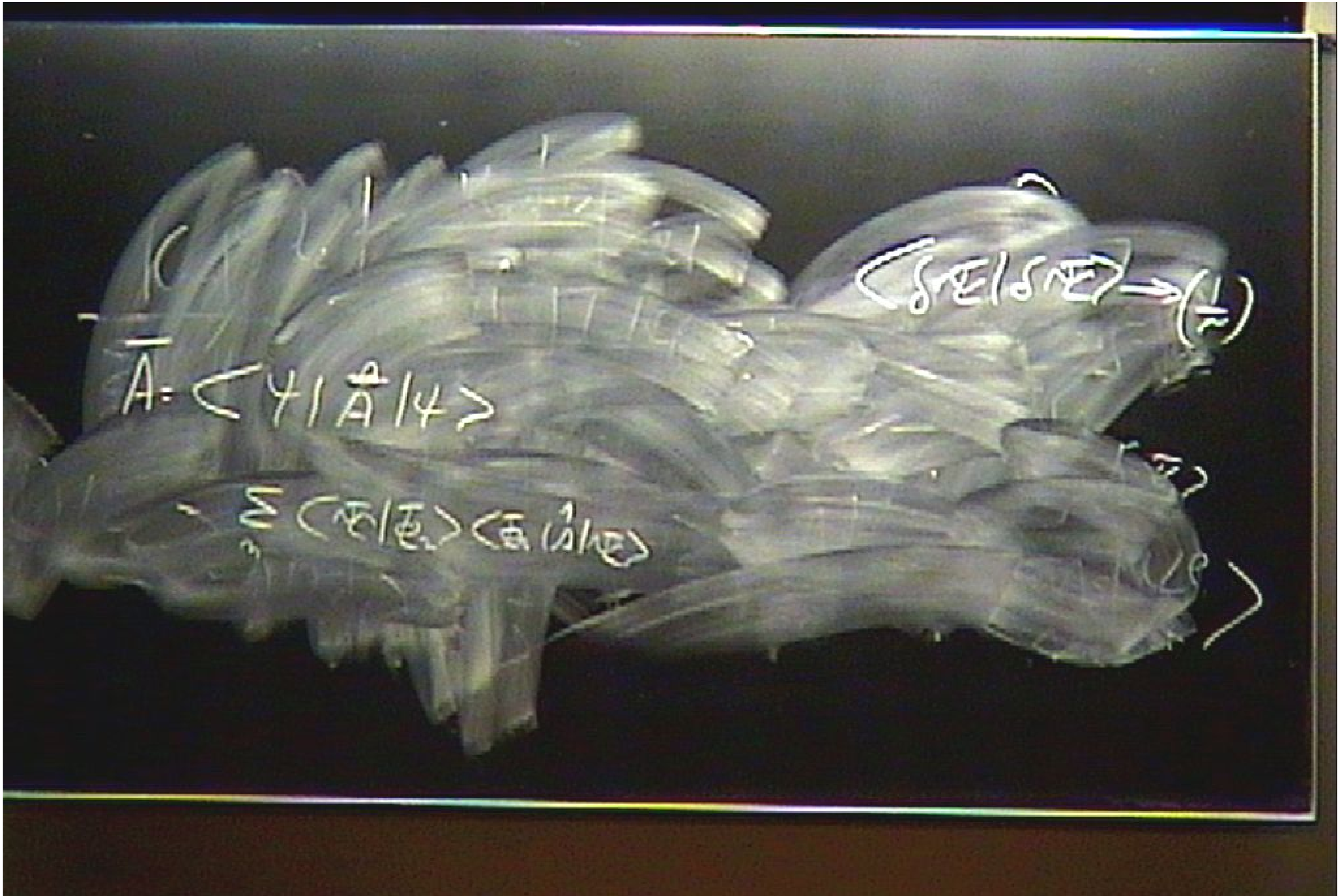


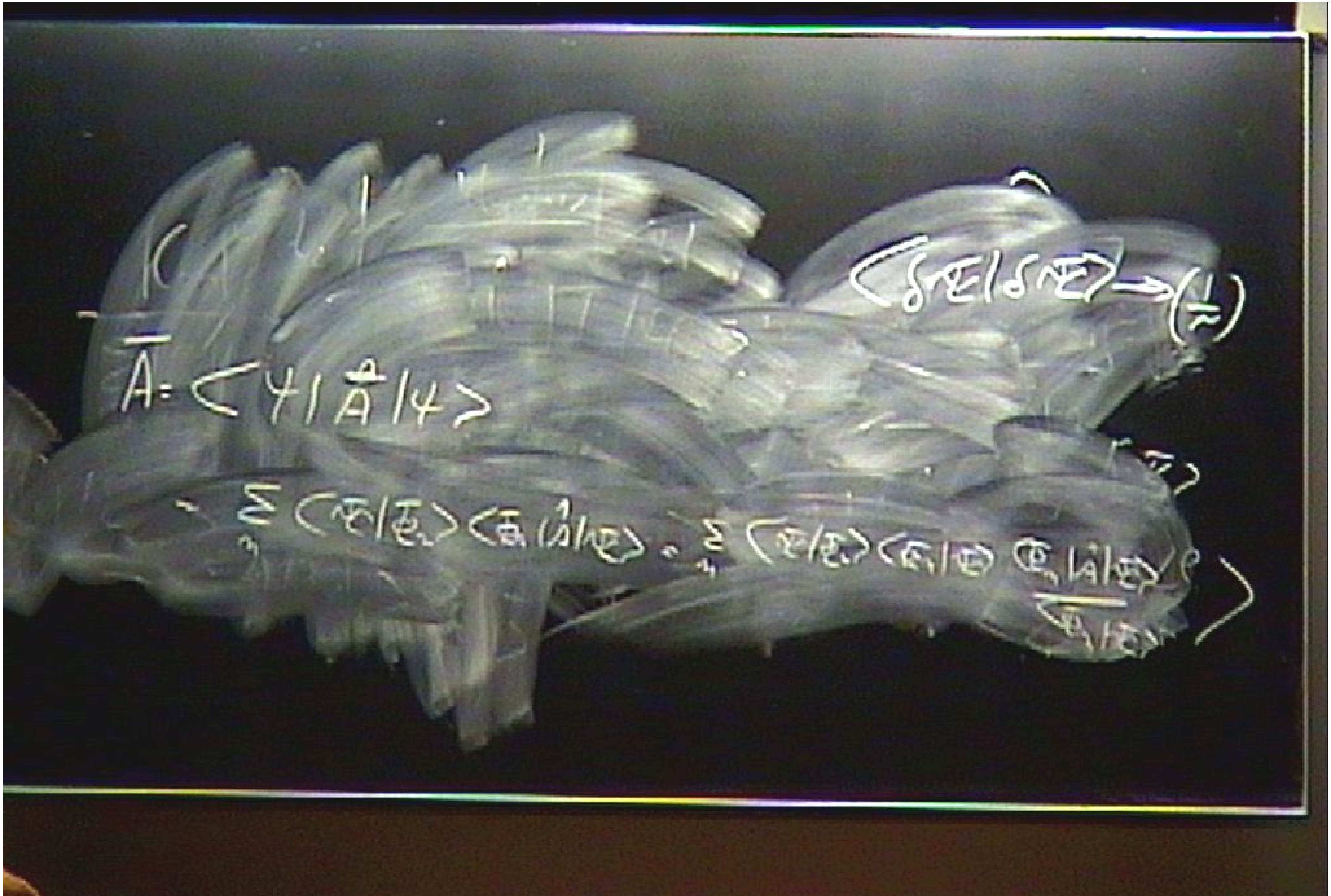

1 2 3 4 5

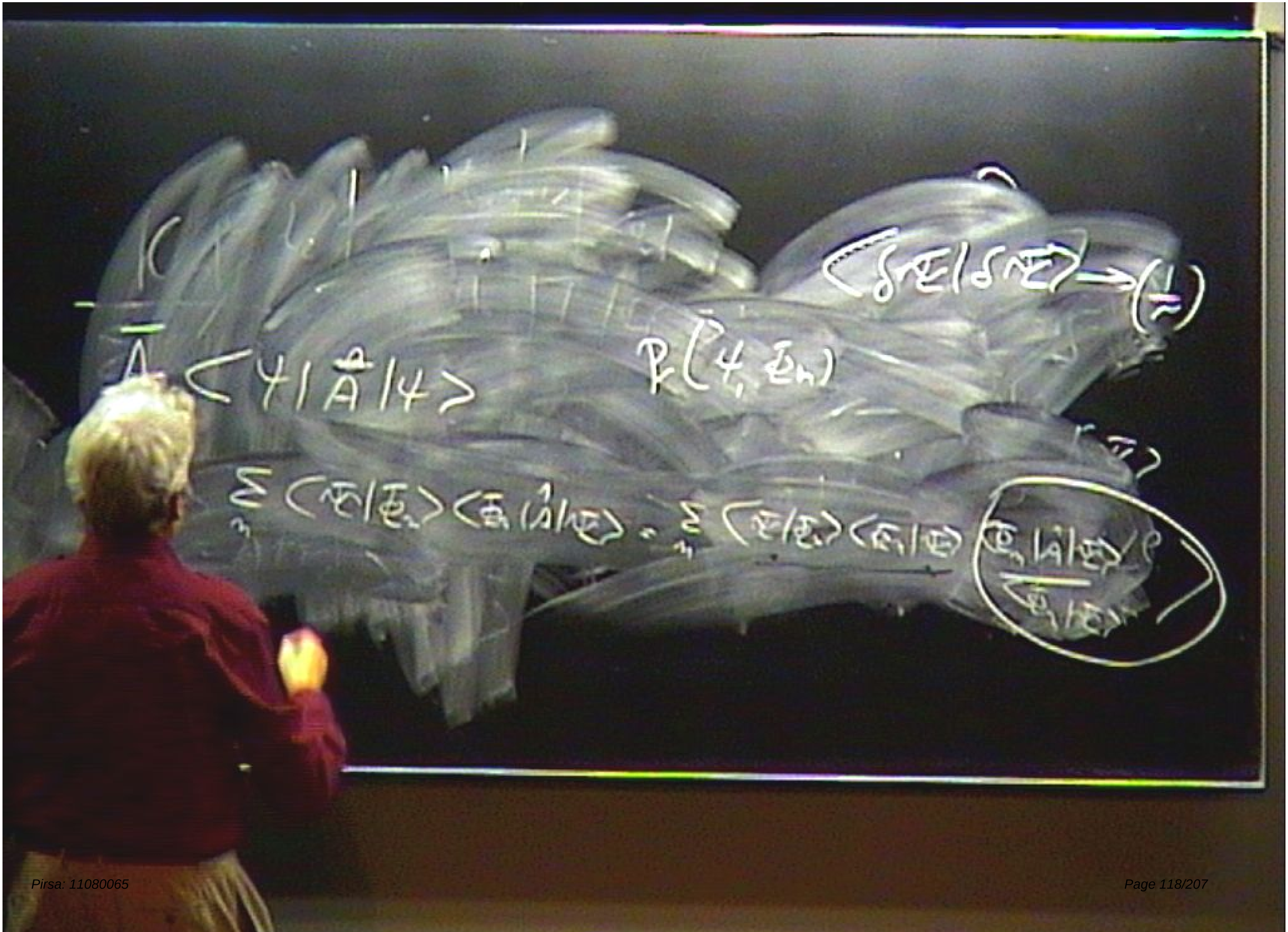


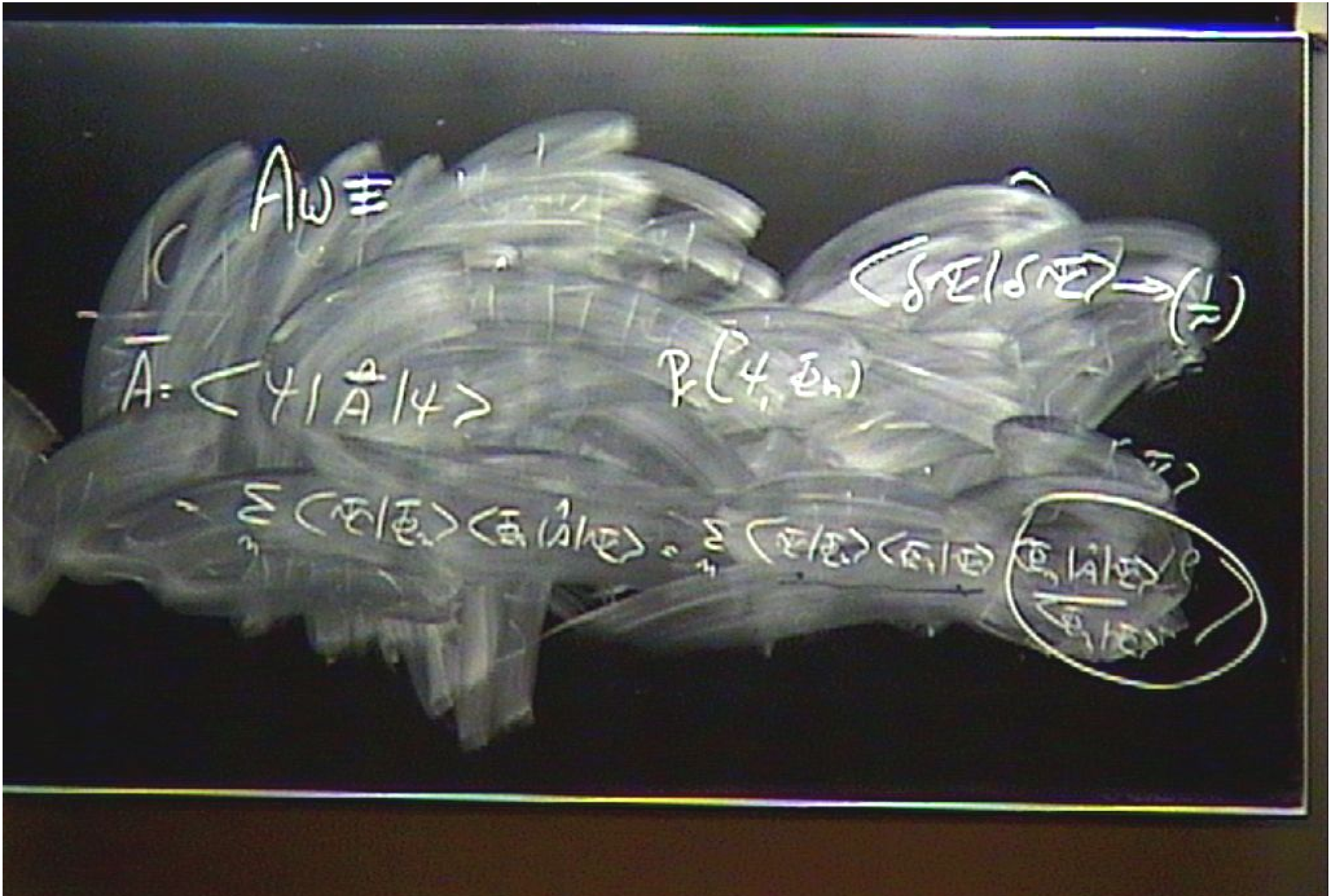


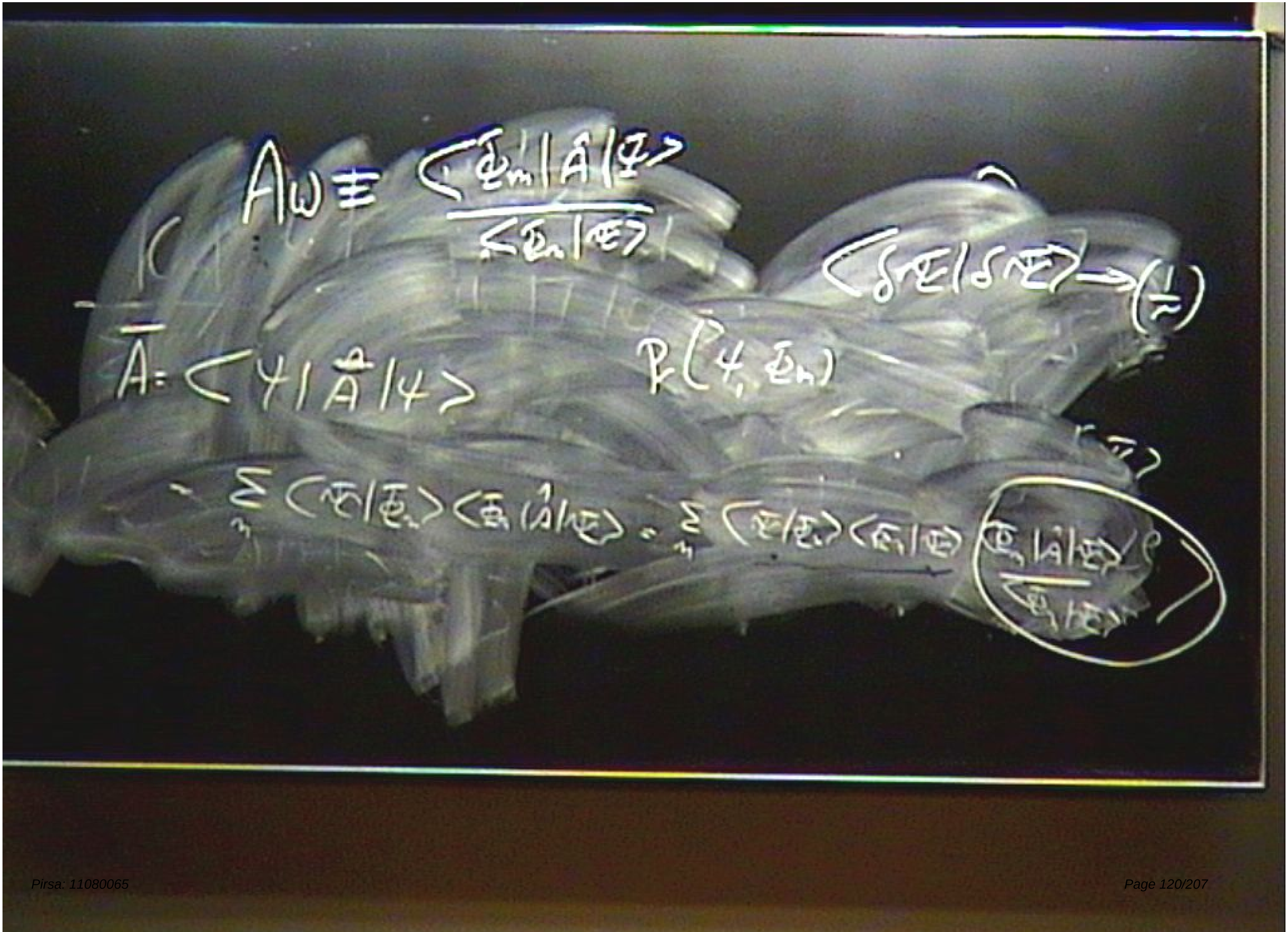

Ā = ⟨ψ|Ā|ψ⟩
⟨δE|δE⟩ → (1/N)

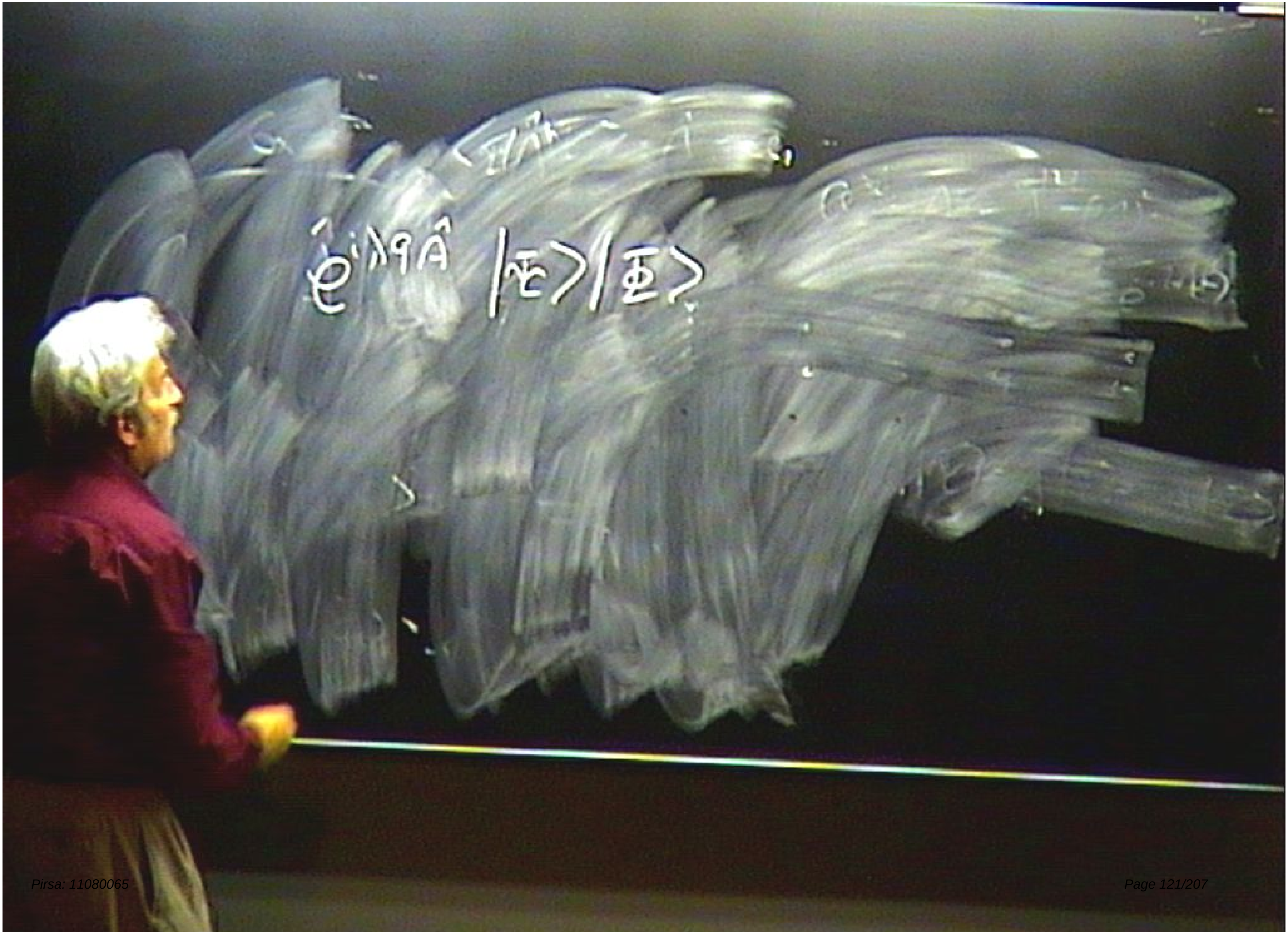

$\bar{A} = \langle \psi | \hat{A} | \psi \rangle$
$\langle \delta E | \delta E \rangle \rightarrow (\hbar)$

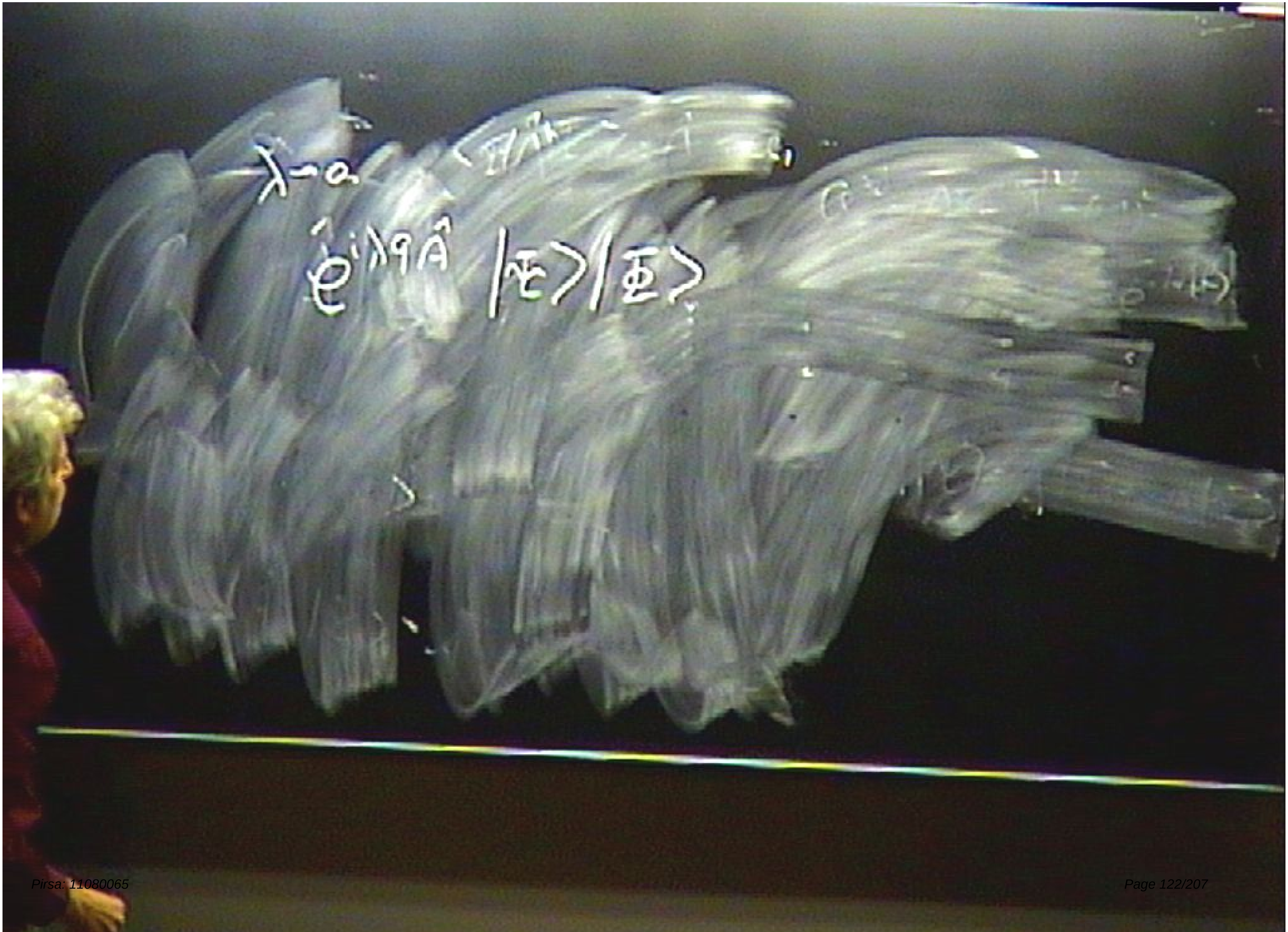

Ā = ⟨ψ|Â|ψ⟩

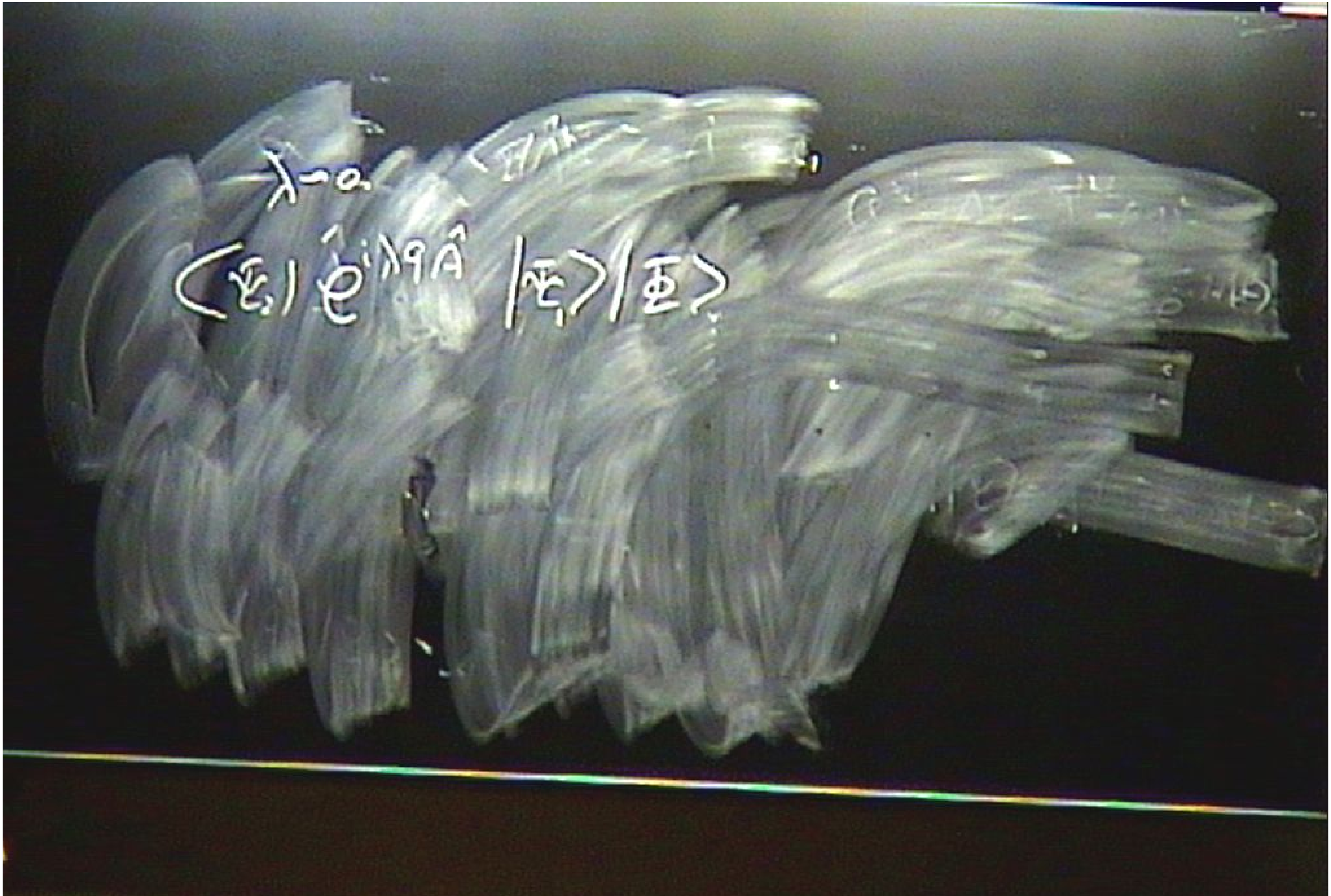


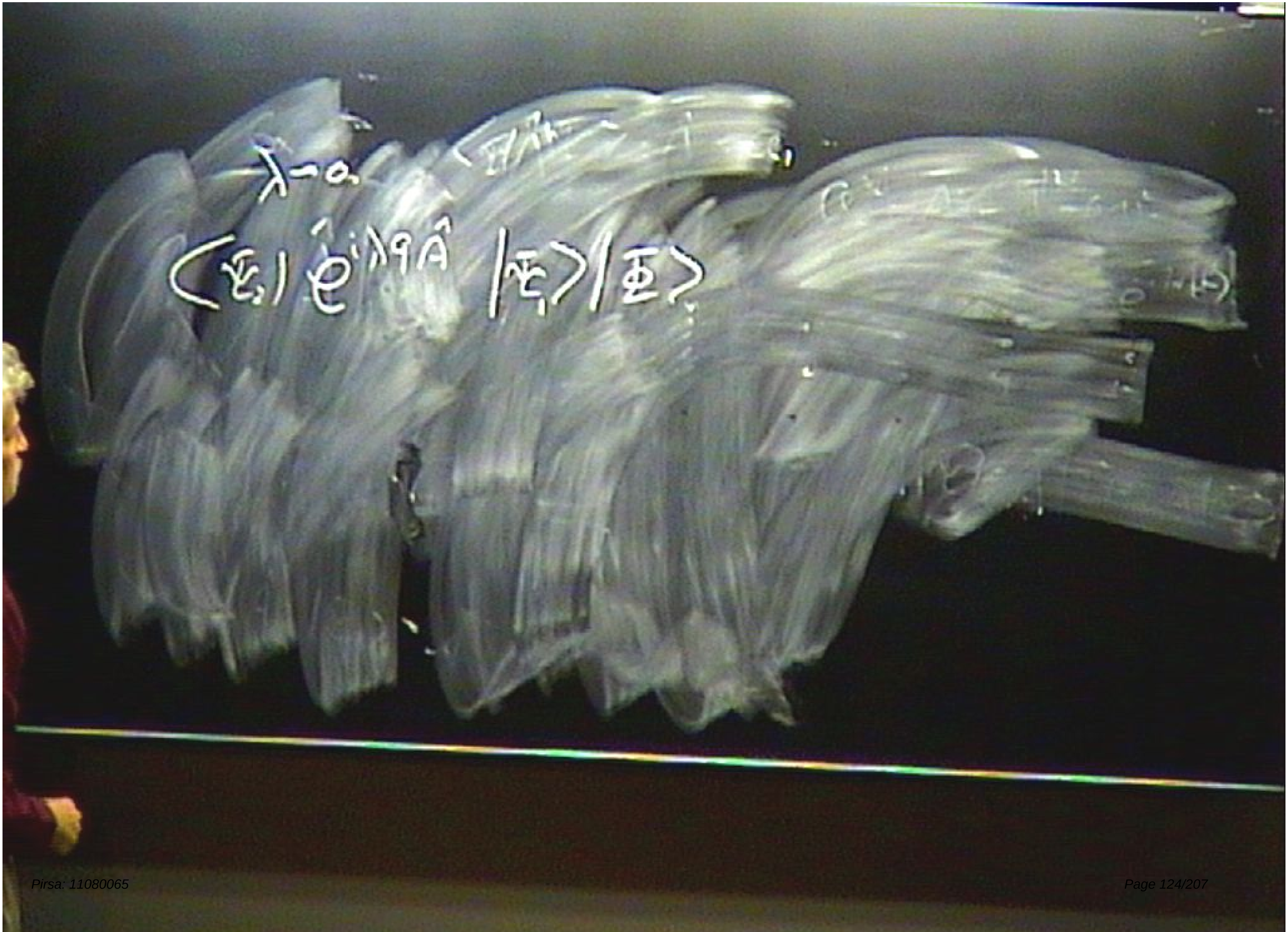

Aw ≡
Ā = ⟨ψ|Â|ψ⟩
P(ψ, E_n)

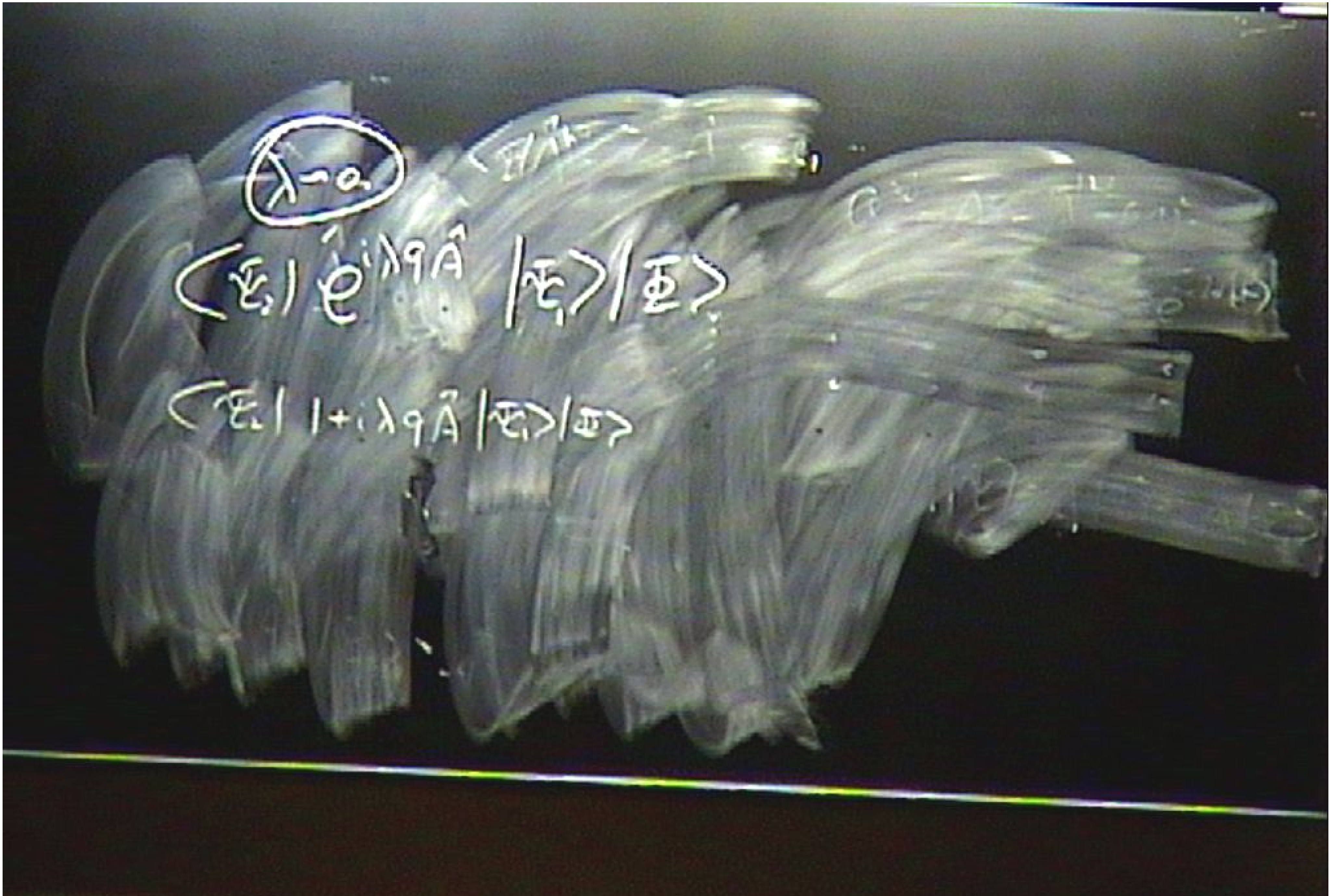

$A_W \equiv \frac{\langle \Phi_m | \hat{A} | \Psi \rangle}{\langle \Phi_m | \Psi \rangle}$
$\langle \delta\Psi | \delta\Psi \rangle \to \left(\frac{1}{N}\right)$
$\bar{A} = \langle \Psi | \hat{A} | \Psi \rangle$
$P(\Psi, \Phi_m)$
$= \sum_m \langle \Psi | \Phi_m \rangle \langle \Phi_m | \hat{A} | \Psi \rangle = \sum_m \langle \Psi | \Phi_m \rangle \langle \Phi_m | \Psi \rangle \frac{\langle \Phi_m | \hat{A} | \Psi \rangle}{\langle \Phi_m | \Psi \rangle}$

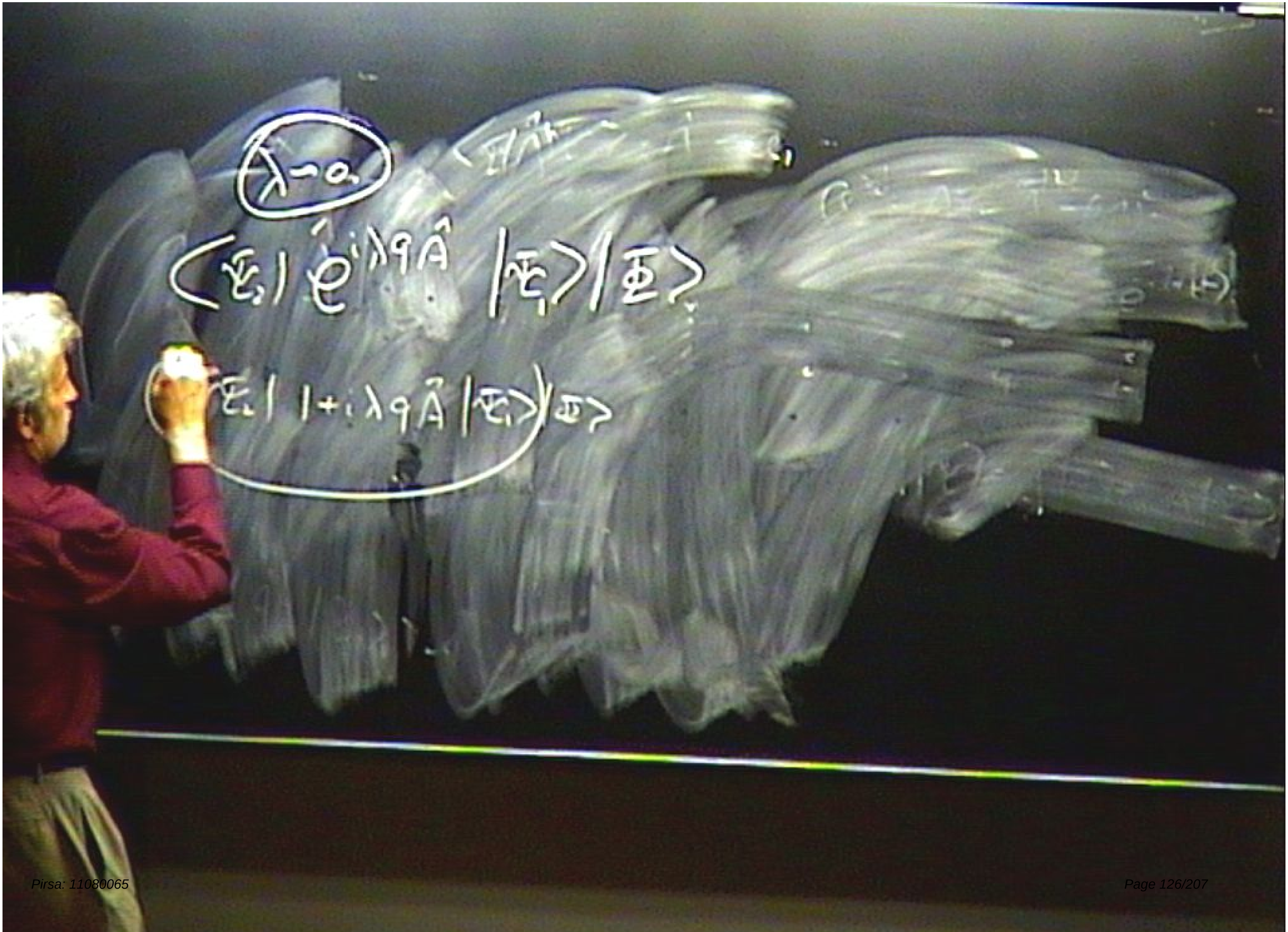

e^{iλqÂ} |Ψ⟩|Φ⟩


λ→a
e^{iλqÂ} |Ψ⟩|Φ⟩

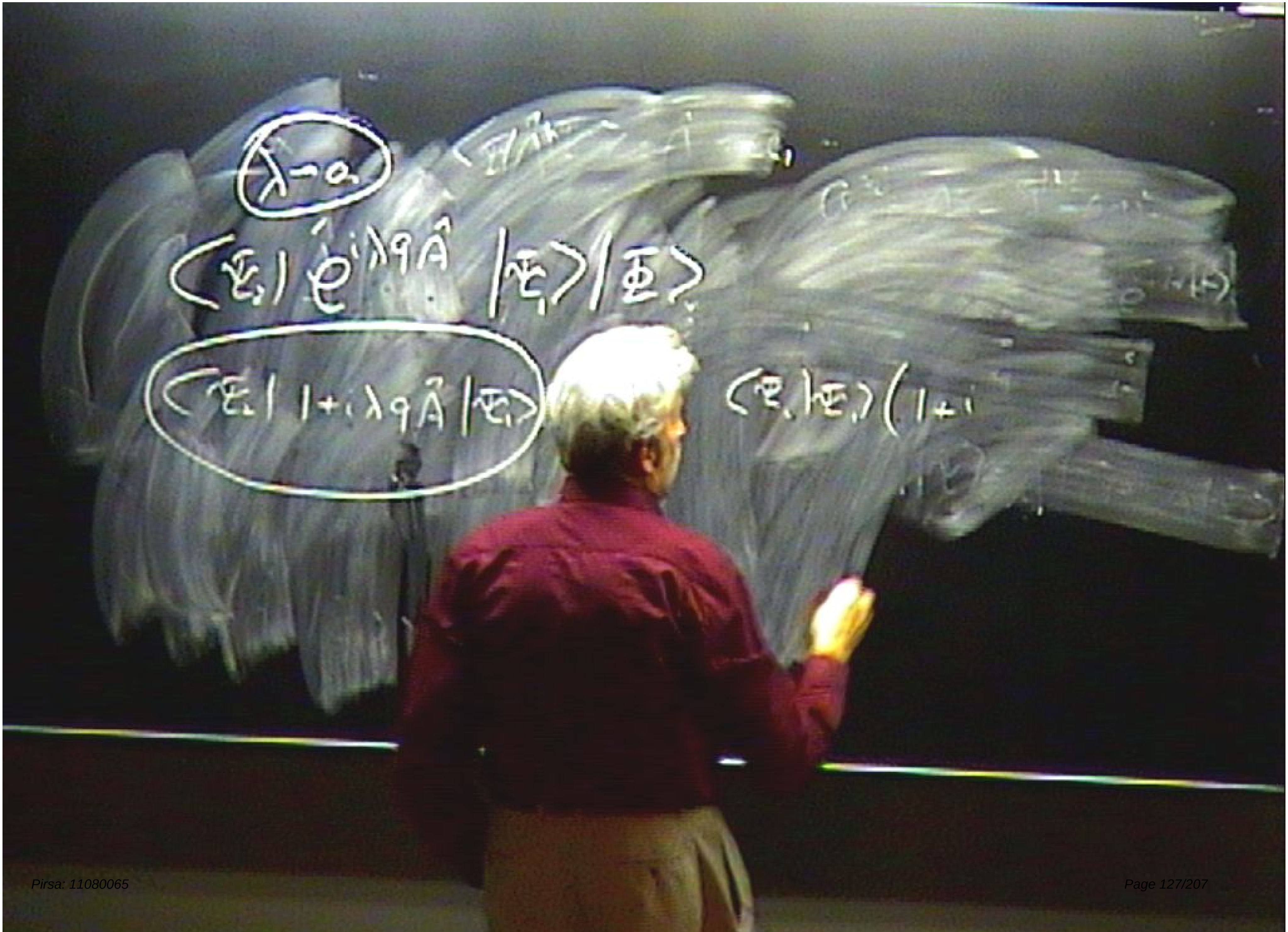


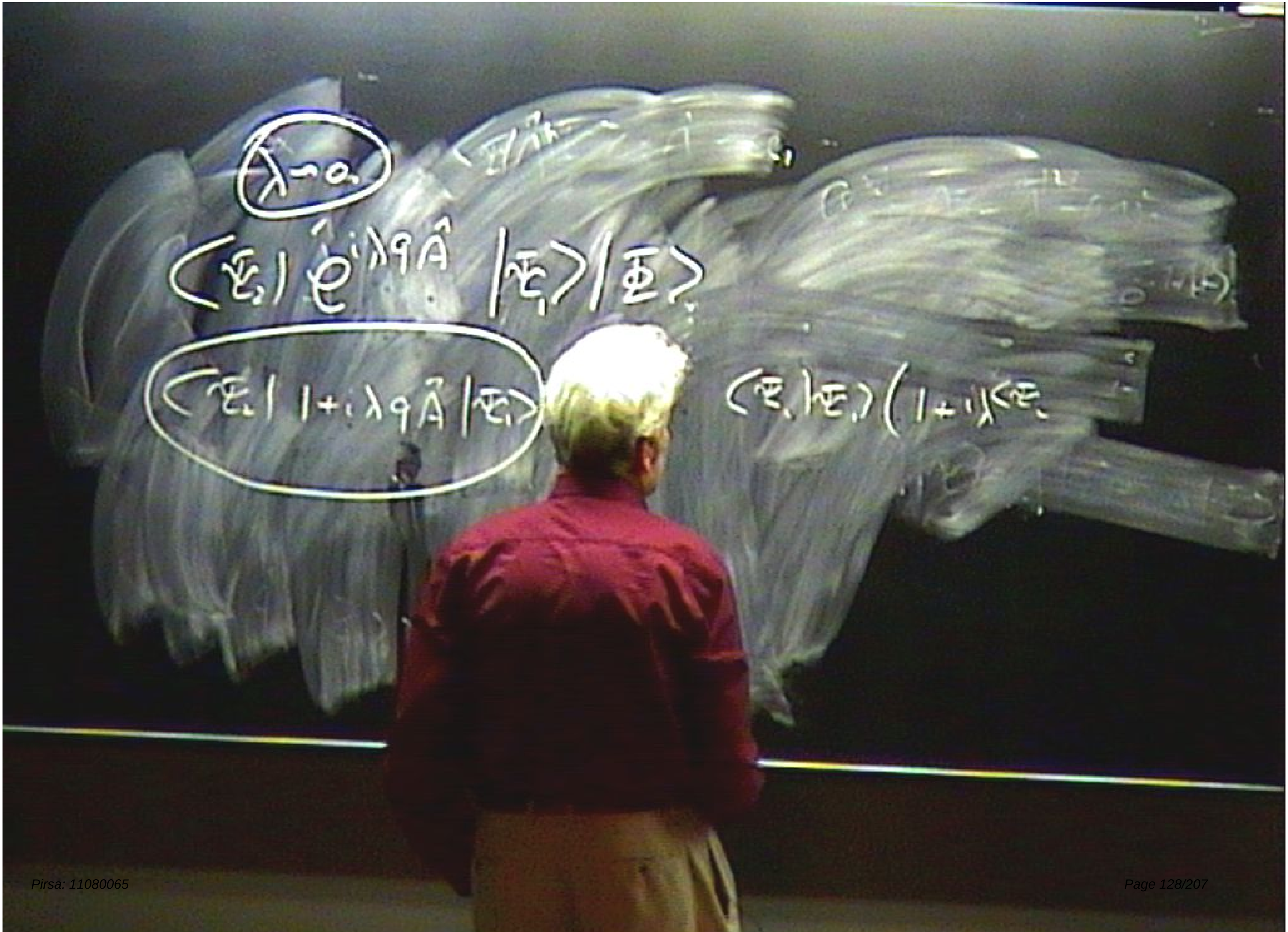


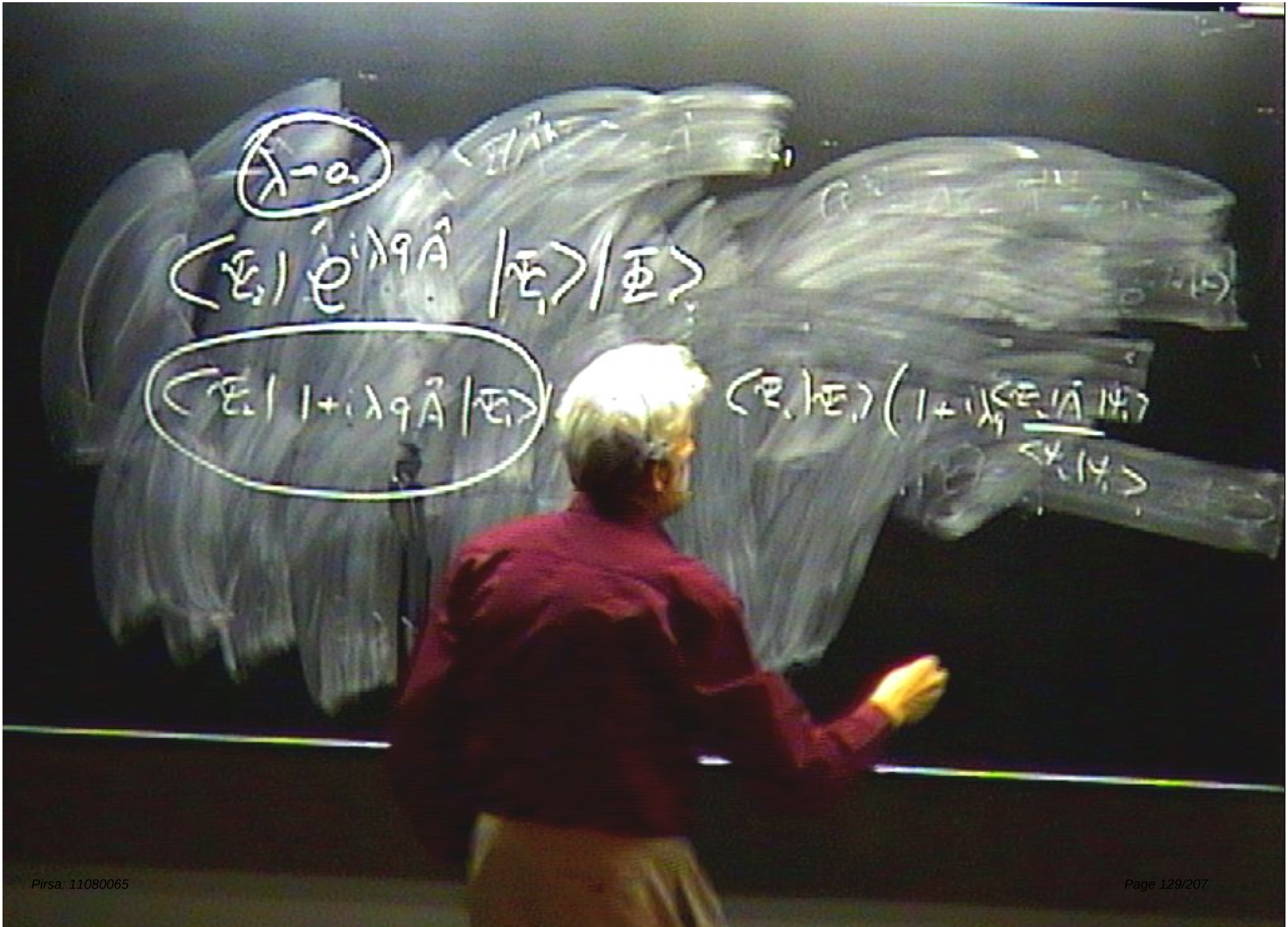

λ→a
⟨Φ₁| e^{iλqÂ} |Φ₁⟩|Φ⟩
⟨Φ₁| 1+iλqÂ |Φ₁⟩|Φ⟩

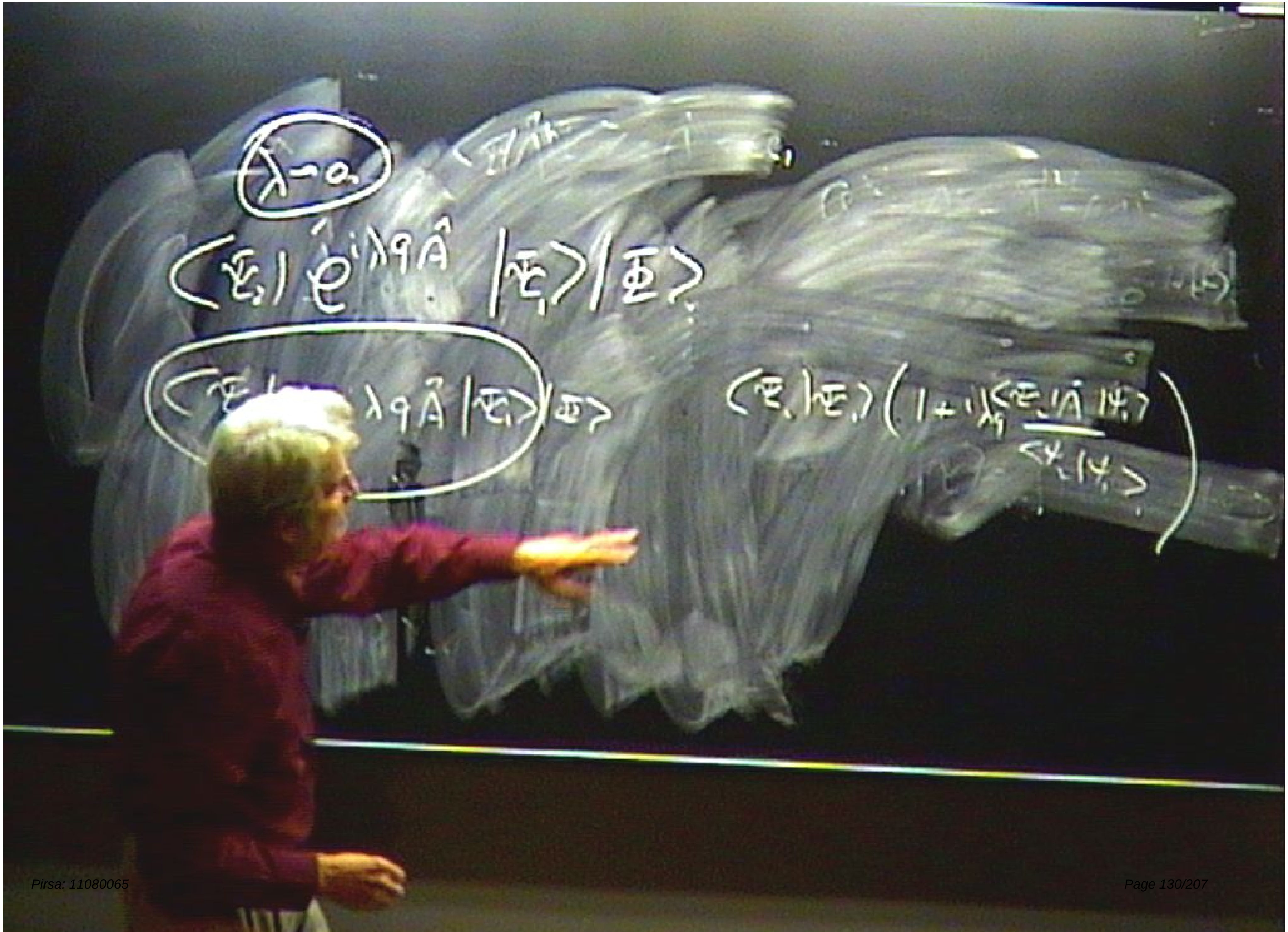


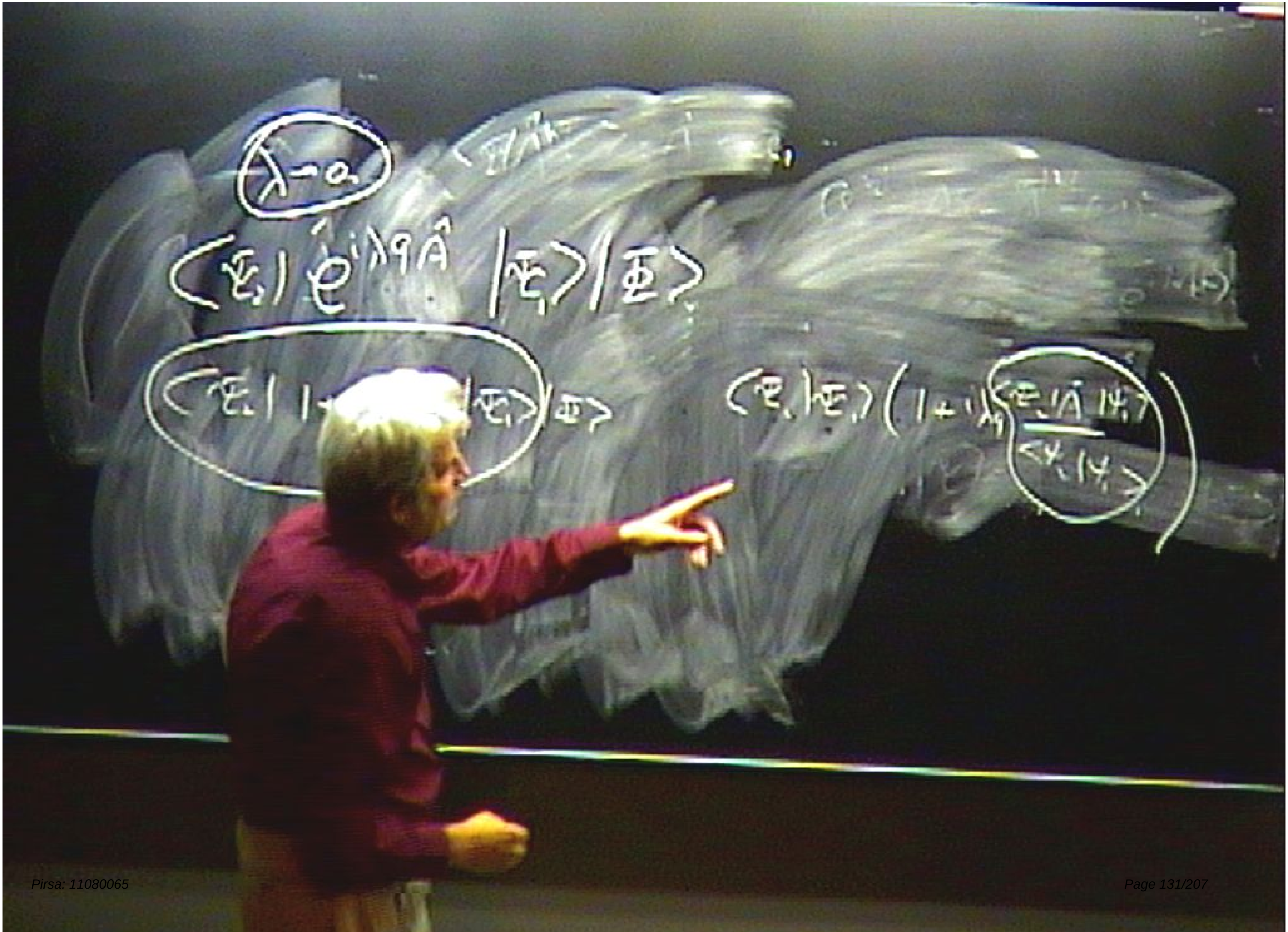
$\lambda \to 0$
$\langle \Phi_1 | e^{i\lambda q \hat{A}} | \Phi_1 \rangle | \Phi \rangle$
$\langle \Phi_1 | 1 + i\lambda q \hat{A} | \Phi_1 \rangle | \Phi \rangle$

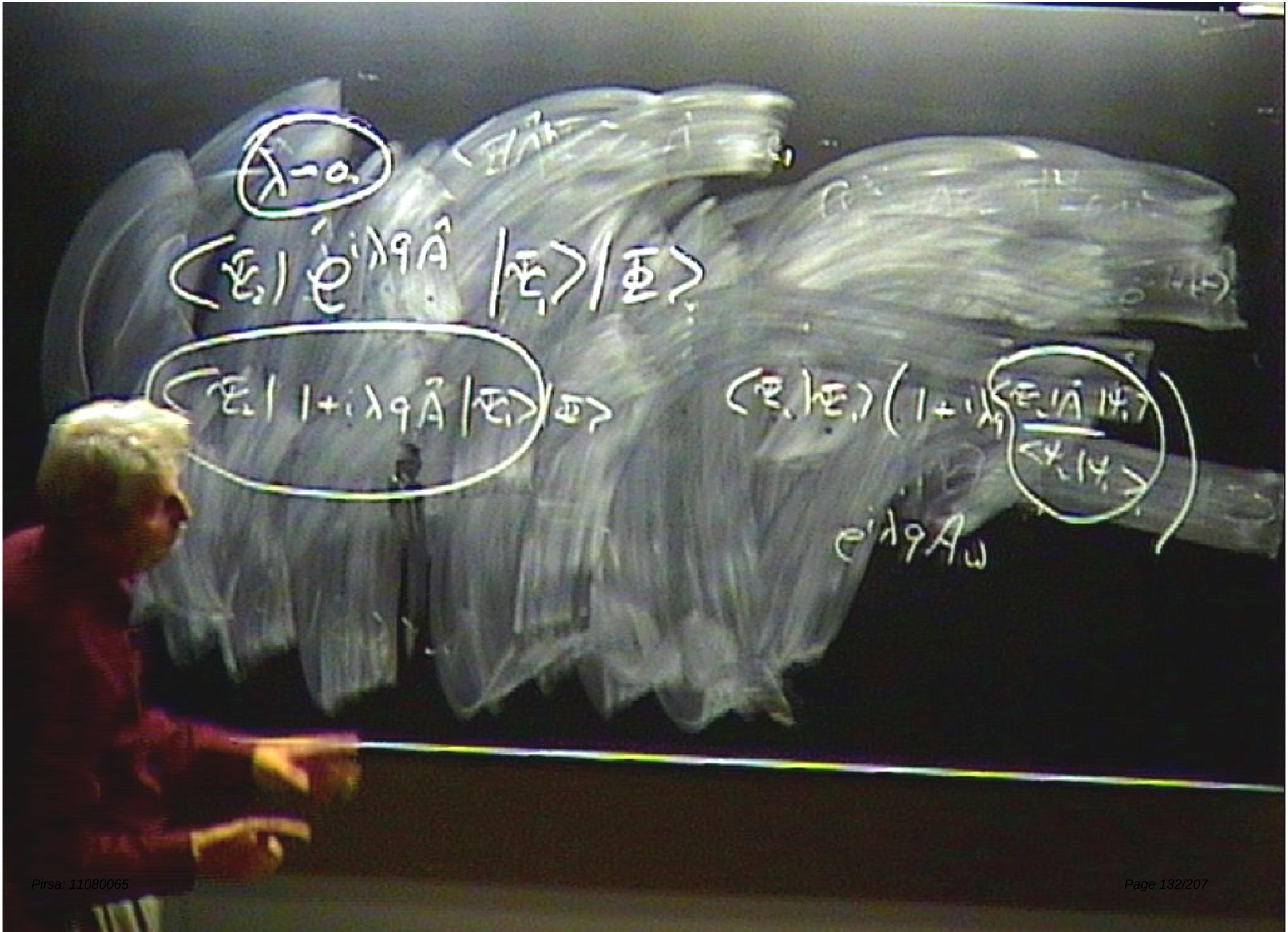

λ→a
⟨Φ₁| e^{iλqÂ} |Φ₁⟩|Φ⟩
⟨Φ₁| 1+iλqÂ |Φ₁⟩
⟨Φ₁|Φ₁⟩(1+i

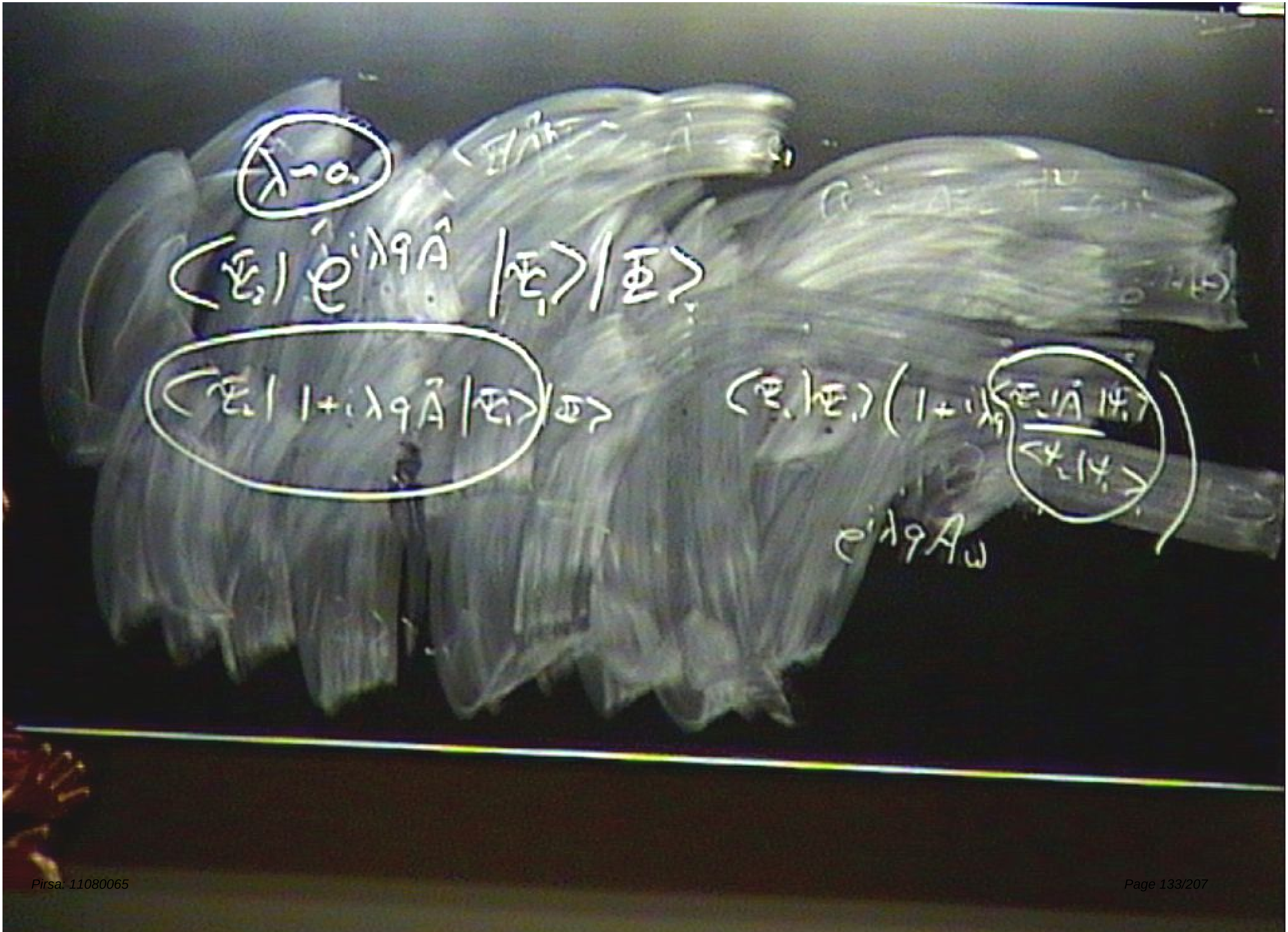


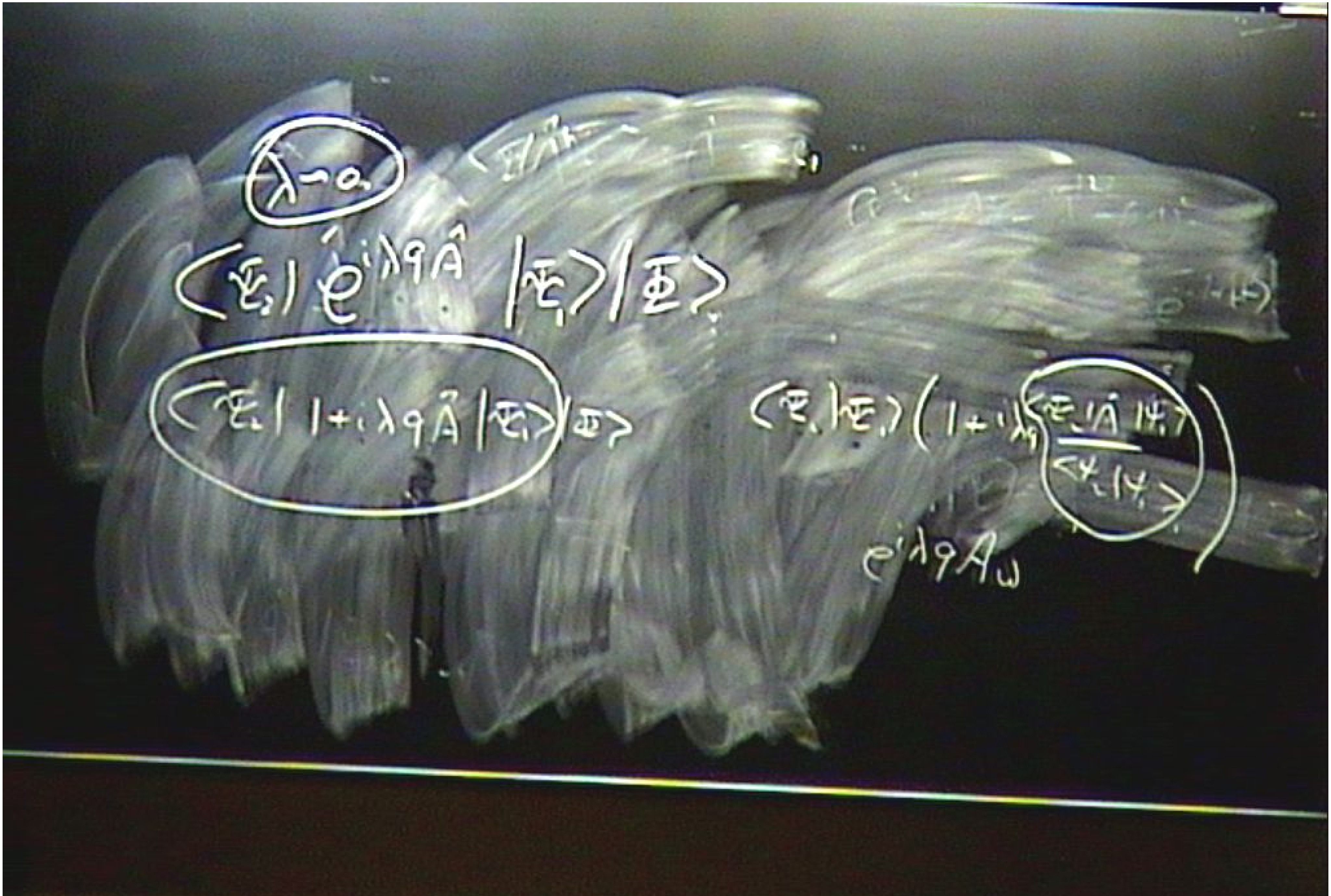


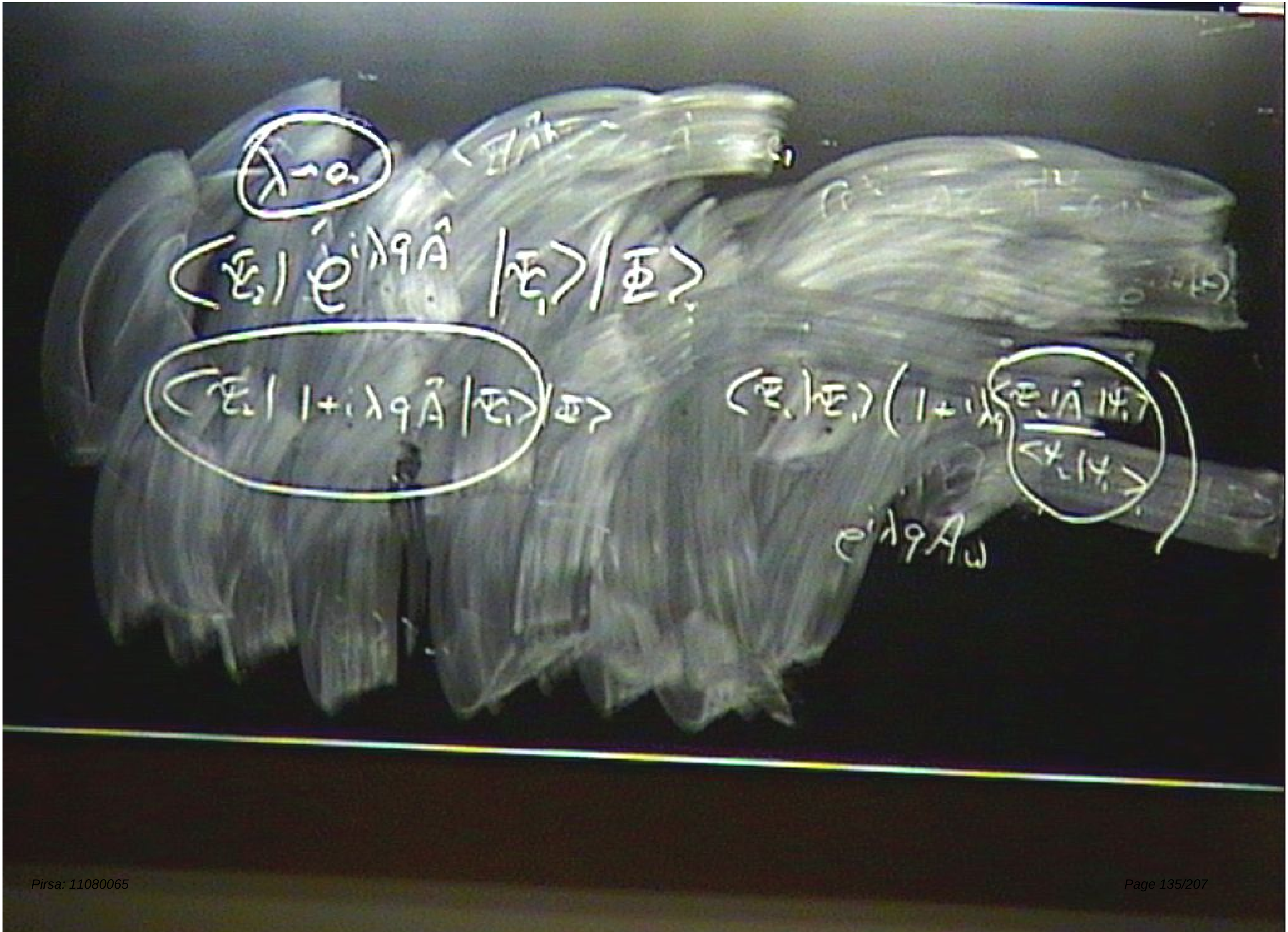


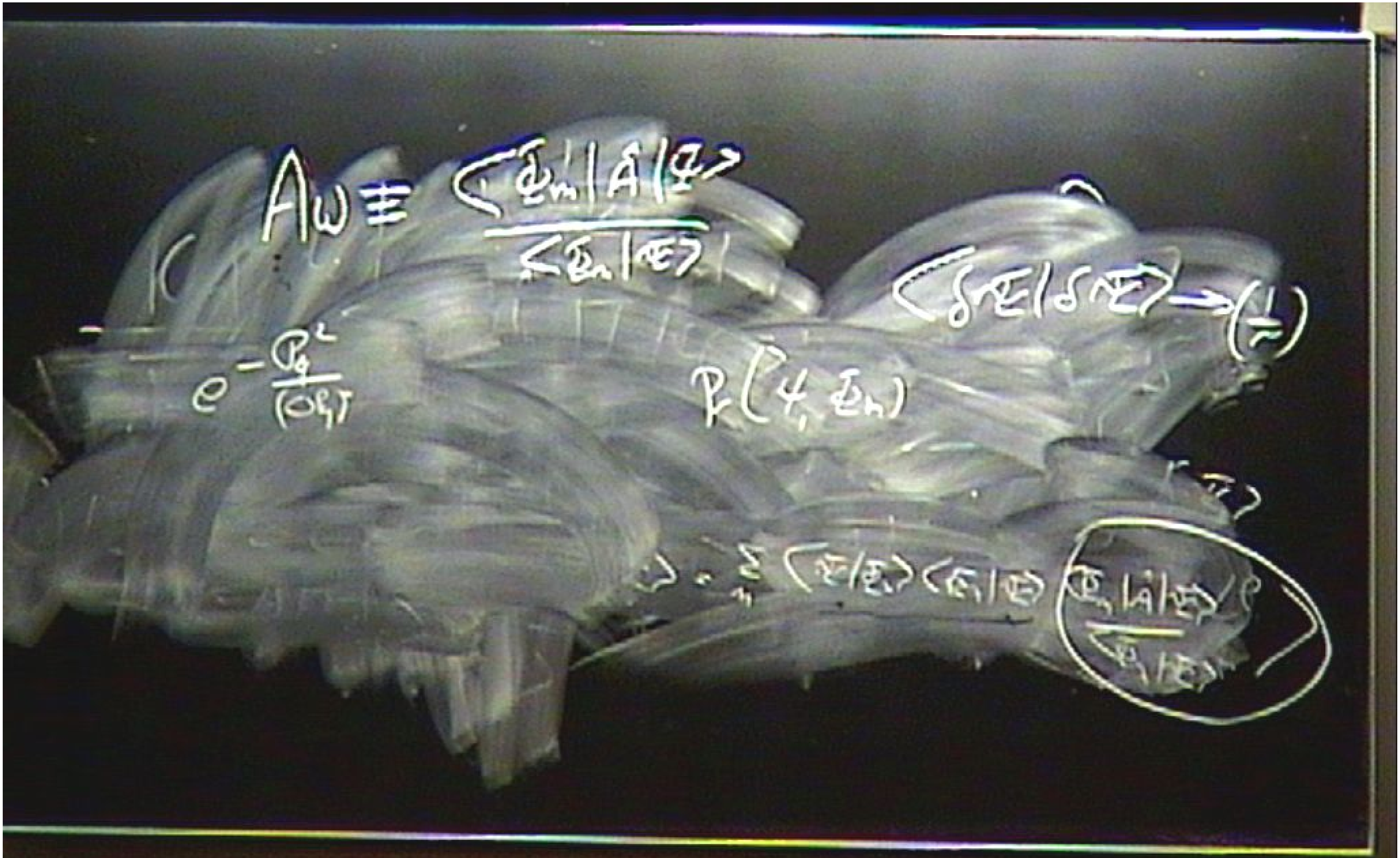



λ→0
⟨Ψ₁| e^{iλqÂ} |Ψ₁⟩|Φ⟩
⟨Ψ₁| 1 + iλqÂ |Ψ₁⟩|Φ⟩
e^{iλqA_w}

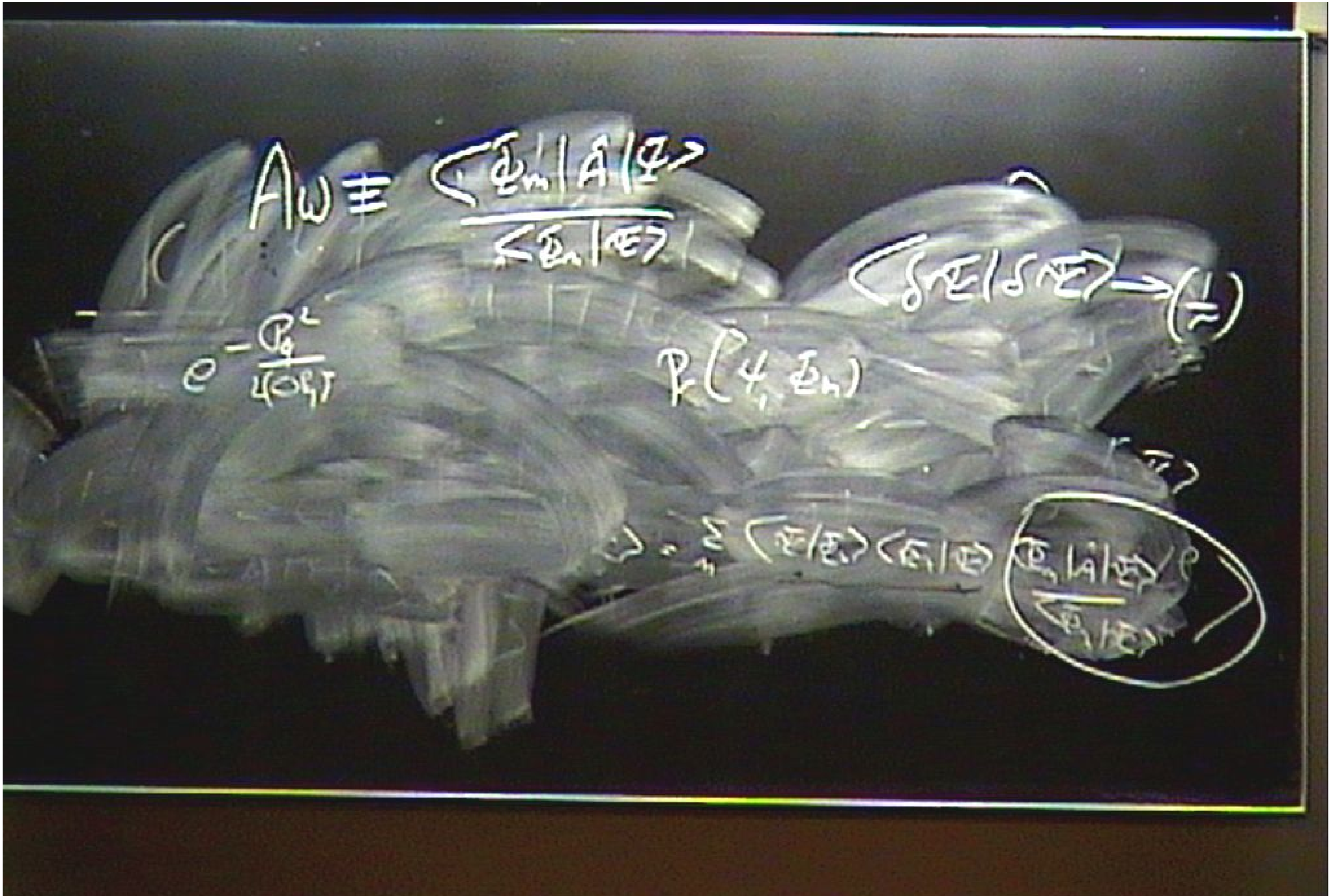

λ→0
⟨Ψ₂| e^{iλqÂ} |Ψ₁⟩|Φ⟩
⟨Ψ₂| 1 + iλqÂ |Ψ₁⟩|Φ⟩
⟨Ψ₂|Ψ₁⟩(1 + iλq ⟨Ψ₂|Â|Ψ₁⟩ / ⟨Ψ₂|Ψ₁⟩)
e^{iλqA_w}


λ~a
⟨Ψ_f| e^{iλqÂ} |Ψ_i⟩|Φ⟩
⟨Ψ_f| 1+iλqÂ |Ψ_i⟩|Φ⟩
⟨Ψ_f|Ψ_i⟩(1+iλq ⟨Ψ_f|Â|Ψ_i⟩ / ⟨Ψ_f|Ψ_i⟩)
e^{iλqA_w}


λ~a
⟨Φ₁| e^{iλqÂ} |Φ₁⟩|Φ⟩
⟨Φ₂| 1+iλqÂ |Φ₁⟩|Φ⟩
⟨Φ₂|Φ₁⟩(1+iλq ⟨Φ₂|Â|Ψ₁⟩ / ⟨Ψ₂|Ψ₁⟩)
e^{iλqA_w}



AW ≡ ⟨Φm|A|Ψ⟩ / ⟨Φm|Ψ⟩
⟨δΨ|δΨ⟩ →
P(Ψ, Φm)


$A_W \equiv \frac{\langle \Phi_m | \hat{A} | \Psi \rangle}{\langle \Phi_m | \Psi \rangle}$
$\langle \delta\Psi | \delta\Psi \rangle \rightarrow$
$P_r(\Psi, \Phi_m)$

$$A_w \equiv \frac{\langle \Phi_m | \hat{A} | \Psi \rangle}{\langle \Phi_m | \Psi \rangle}$$

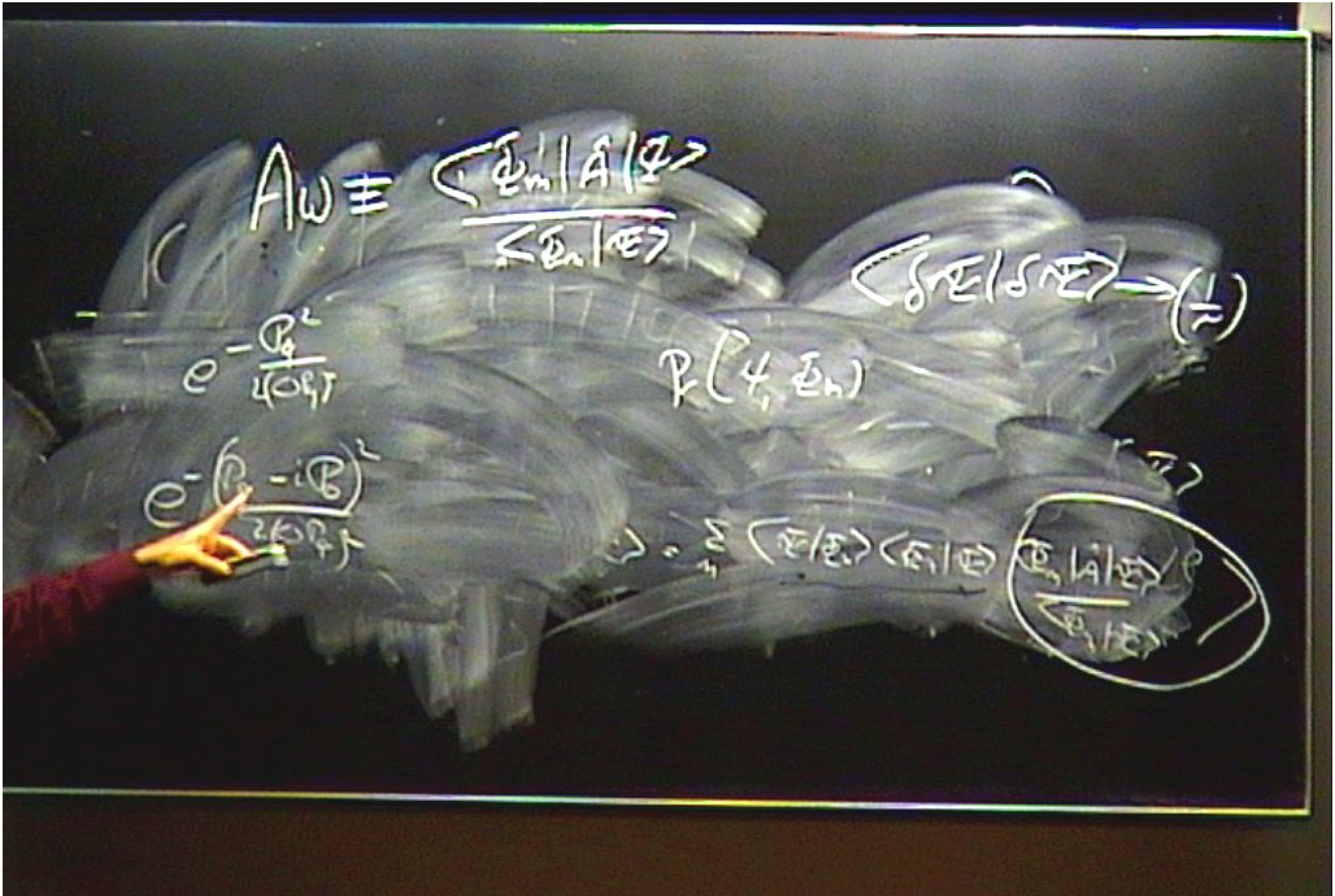
$$\langle \delta\Psi | \delta\Psi \rangle \rightarrow \left(\frac{1}{N}\right)$$

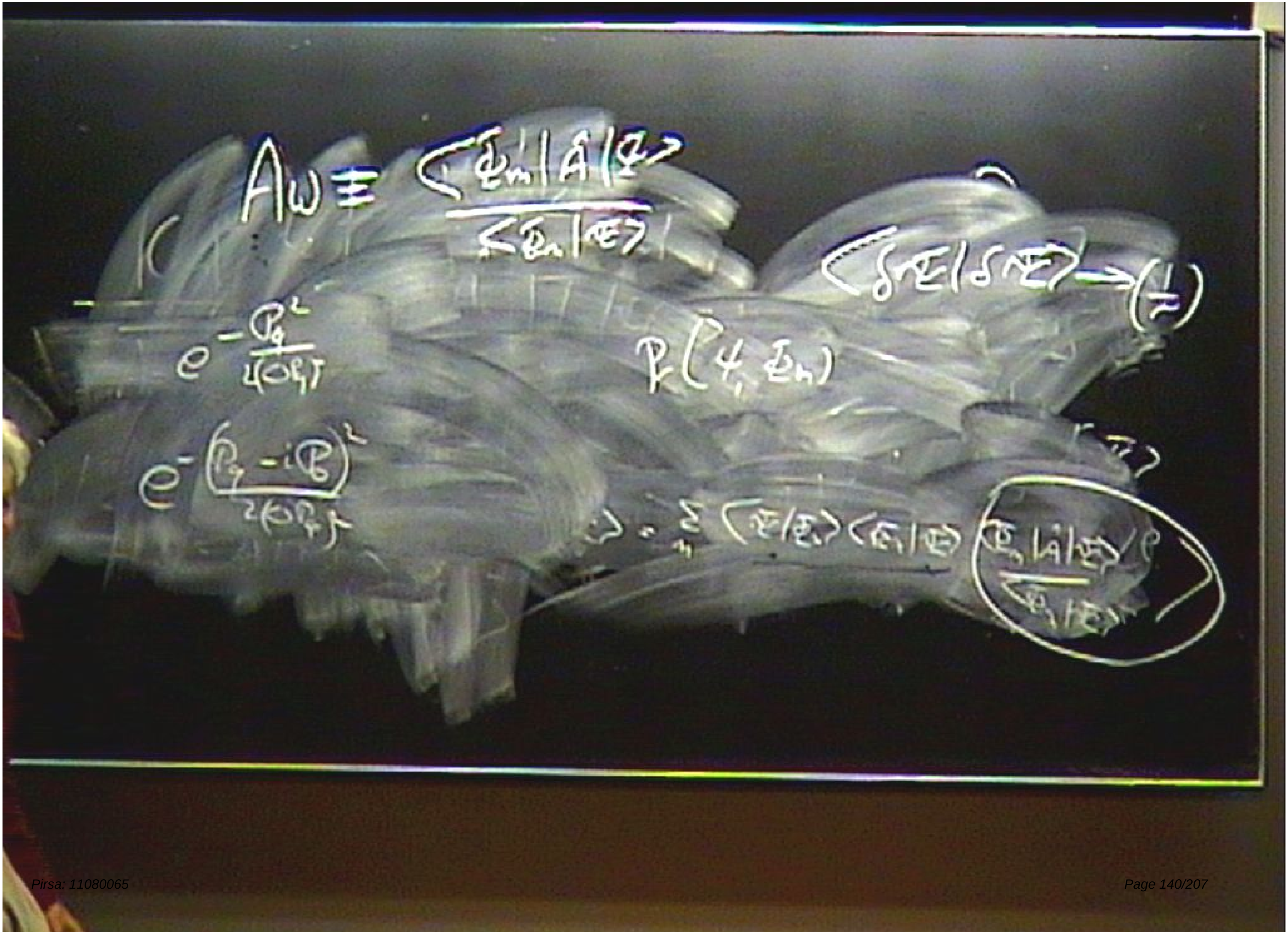
$$e^{-\frac{P_q^2}{4\langle \sigma_q \rangle}}$$

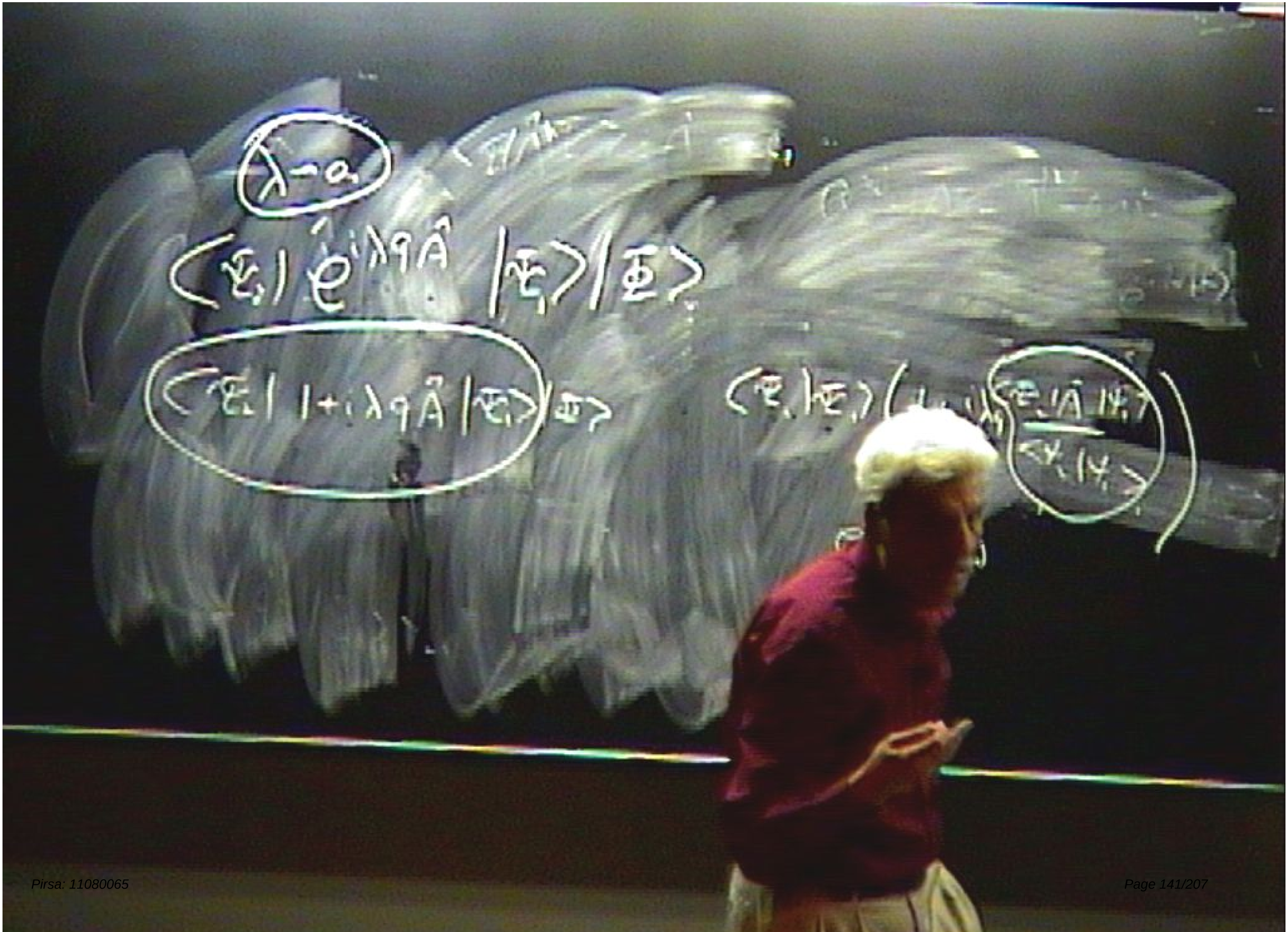
$$P_r(\psi, \Phi_m)$$

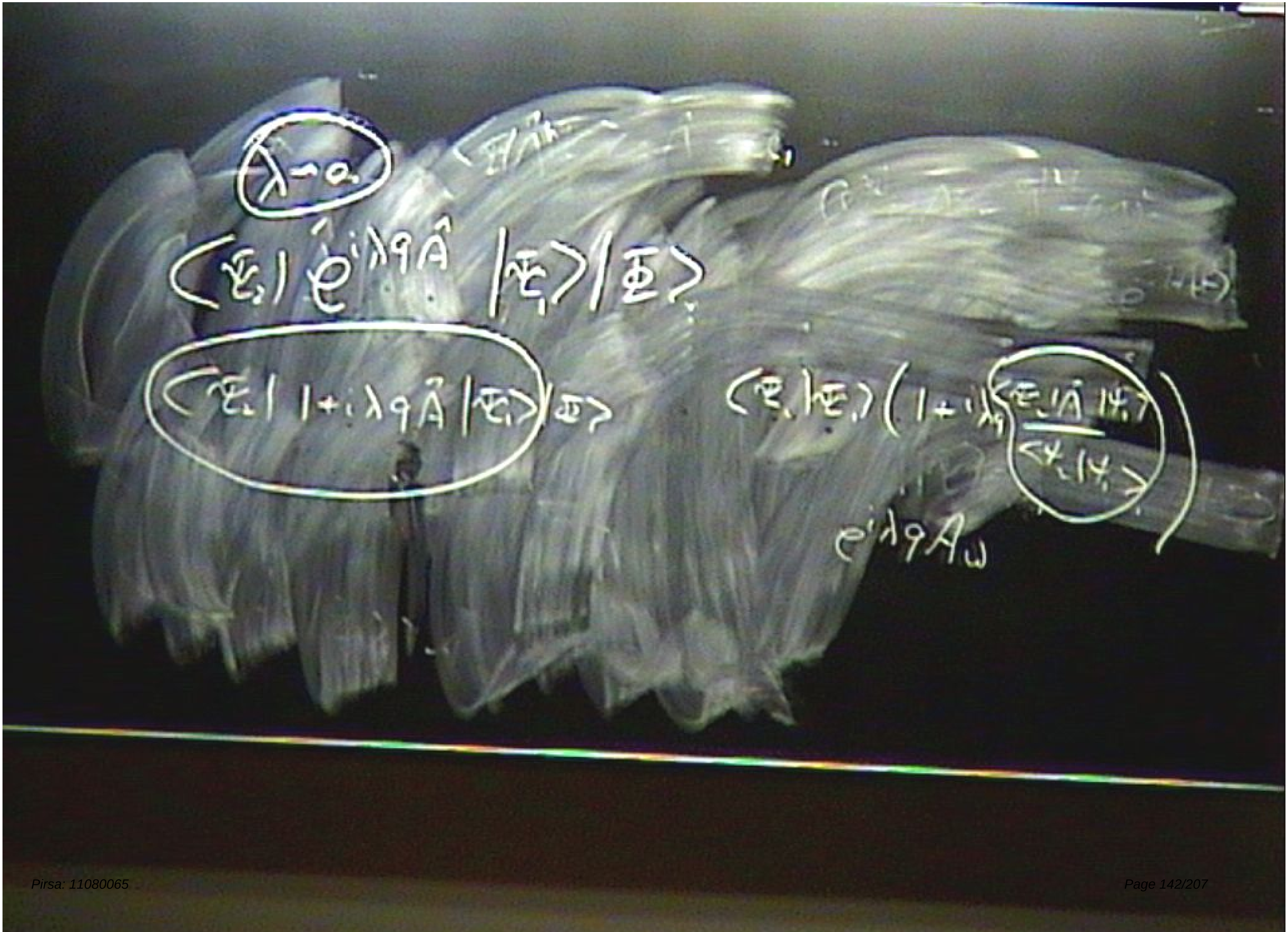
$$e^{-\frac{(P_q - iP_0)^2}{2\langle \sigma P_q \rangle^2}}$$

$$\langle \hat{A} \rangle = \sum_n \langle \Psi | \Phi_n \rangle \langle \Phi_n | \Psi \rangle \frac{\langle \Phi_n | \hat{A} | \Psi \rangle}{\langle \Phi_n | \Psi \rangle}$$

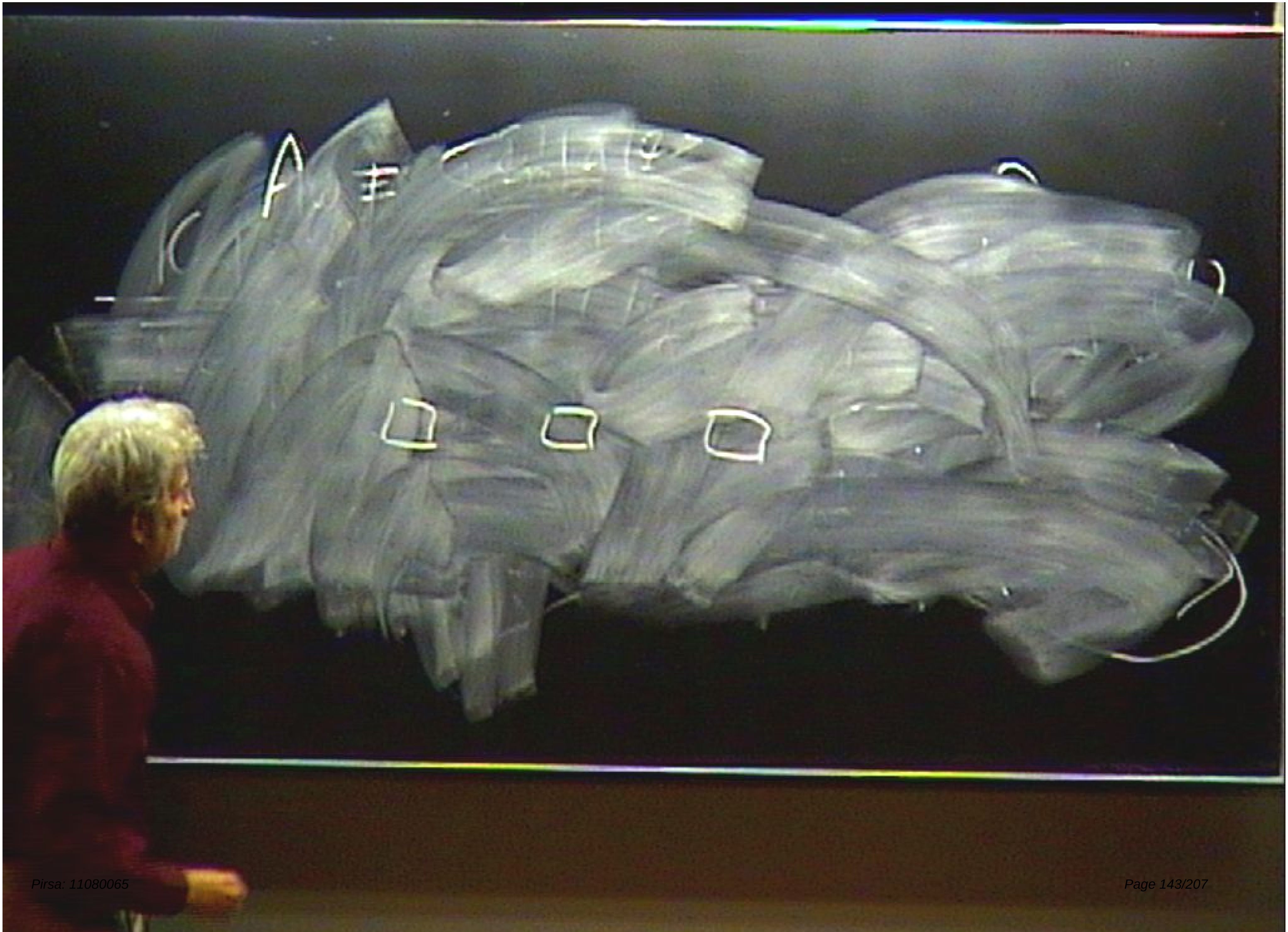


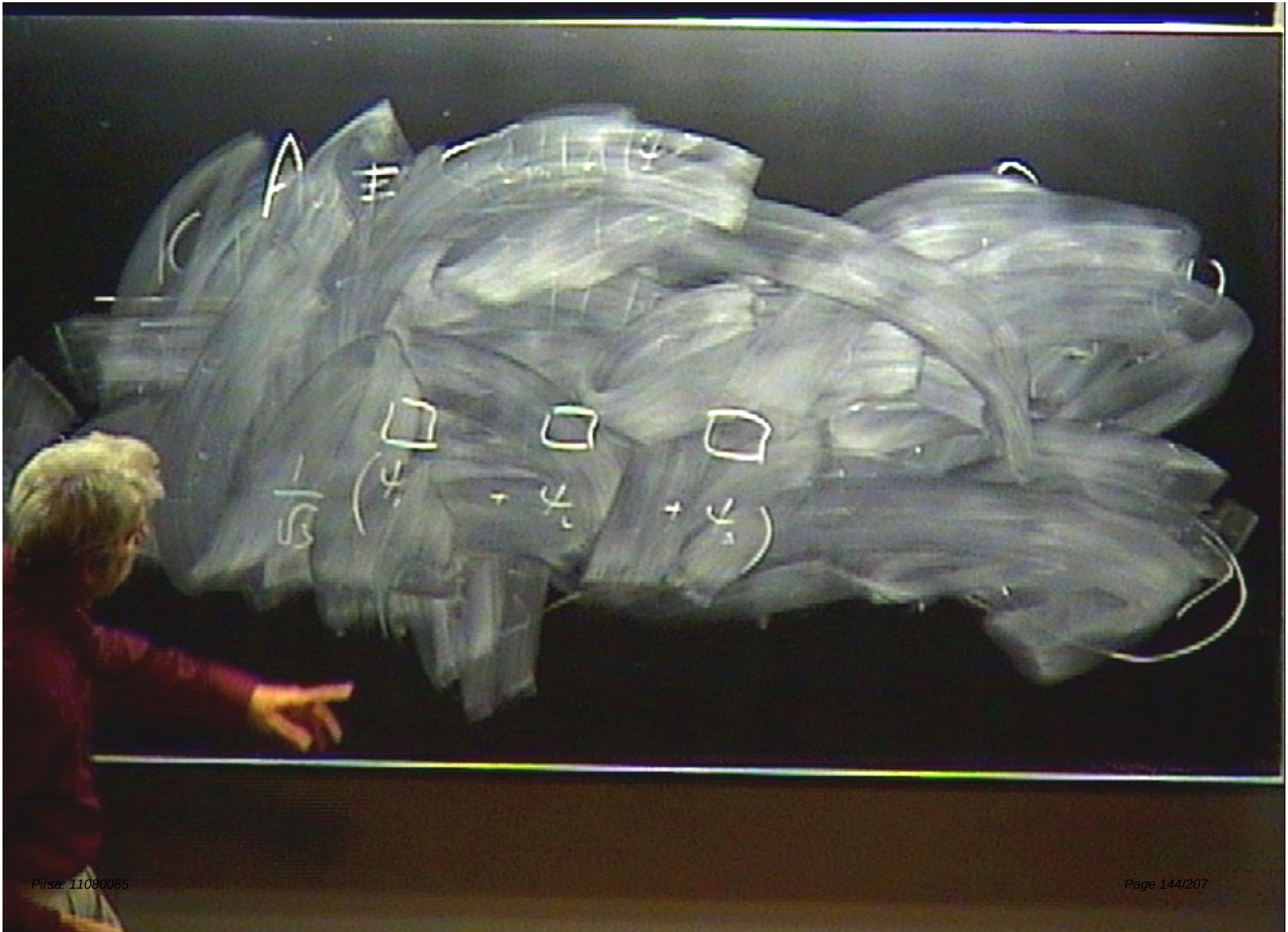

Aw ≡ ⟨Φm|Â|Ψ⟩ / ⟨Φm|Ψ⟩
⟨δΨ|δΨ⟩ → (1/…)
P(q, Φm)

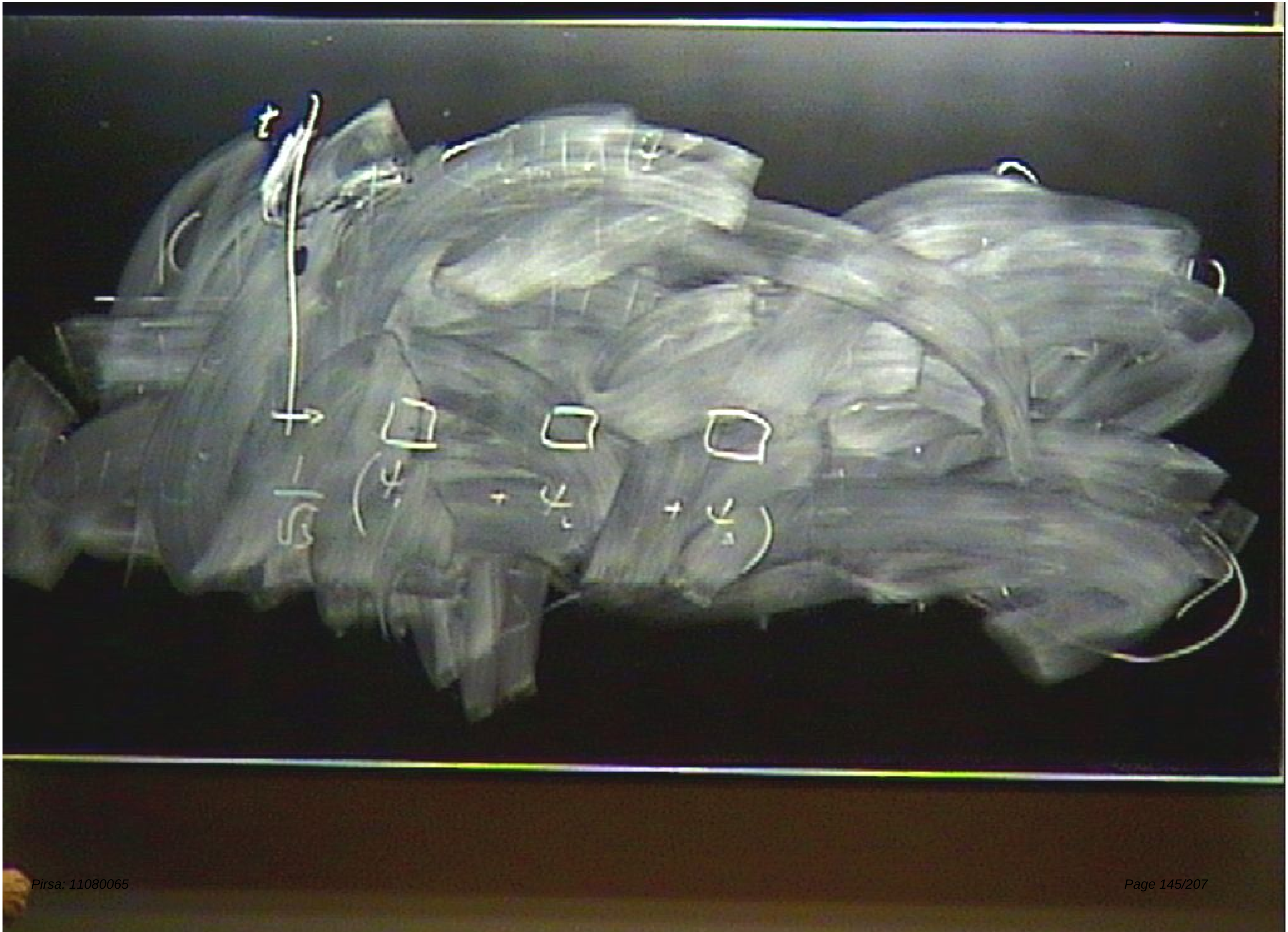


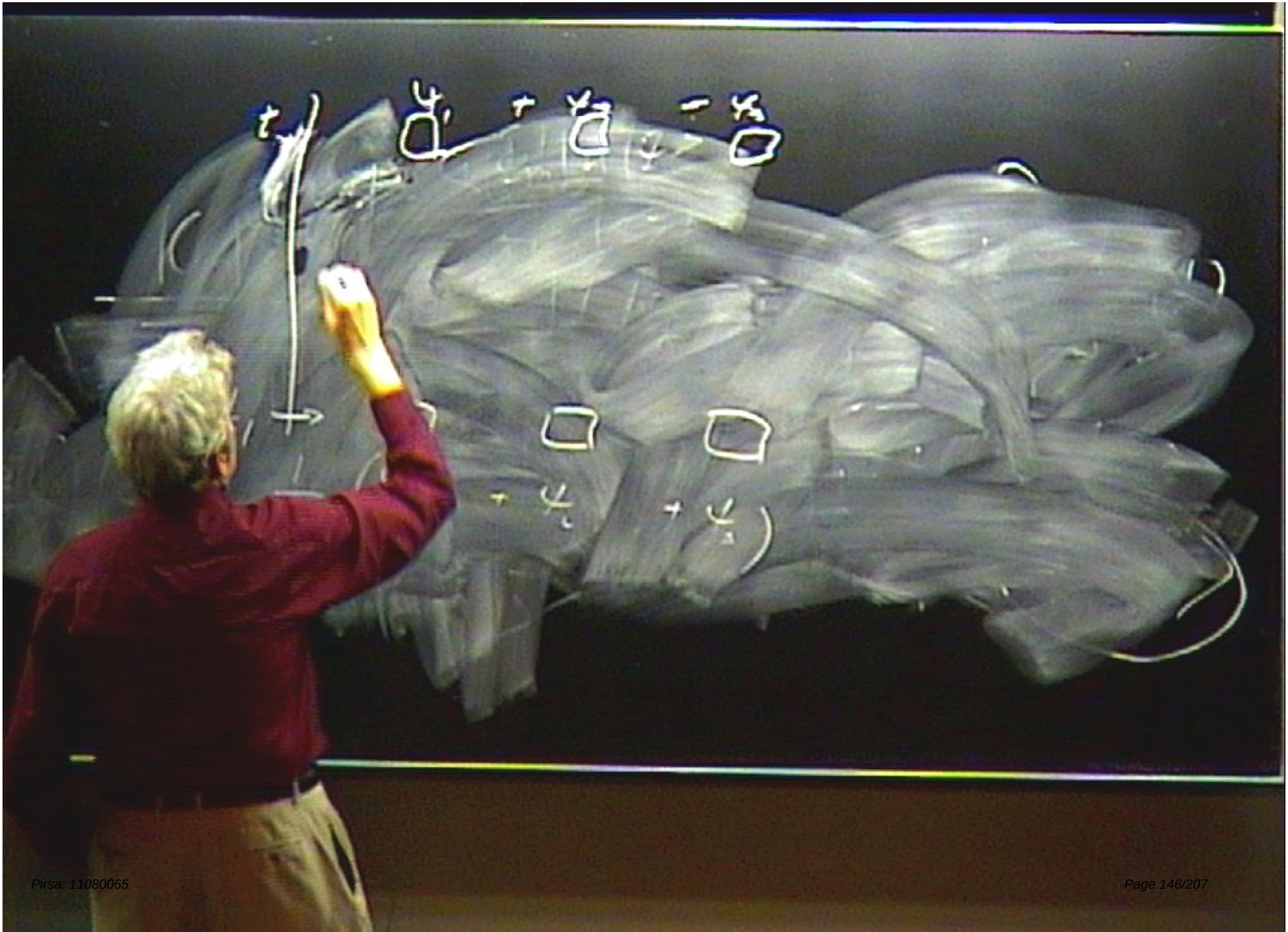


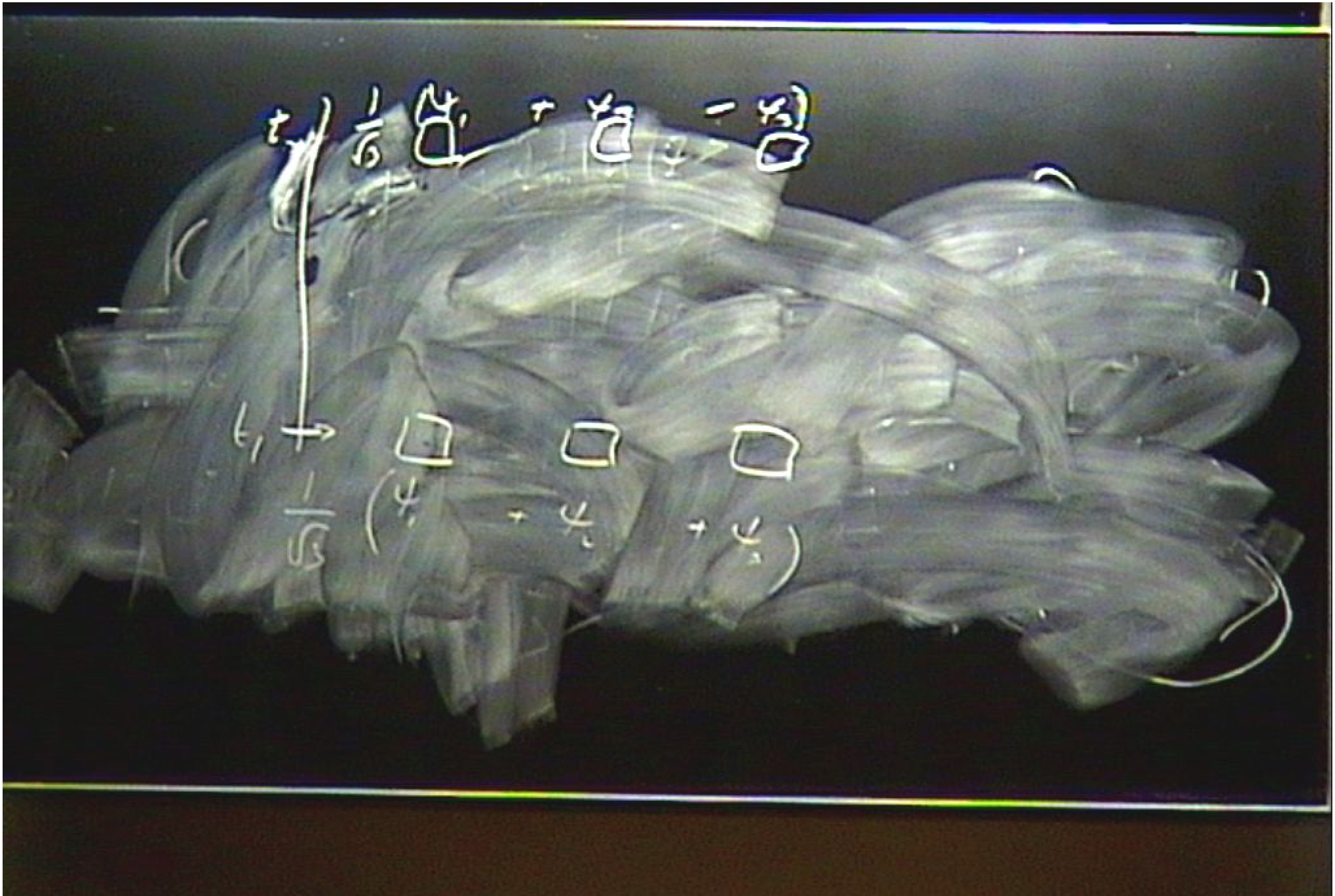
λ→0
⟨Φ₁| e^{iλqÂ} |Φ₁⟩|Φ⟩
⟨Φ₁| 1 + iλqÂ |Φ₁⟩|Φ⟩
⟨Φ₁|Φ₁⟩(1 + iλq ⟨Φ₁|Â|Φ₁⟩ / ⟨Φ₁|Φ₁⟩)
e^{iλqA_w}

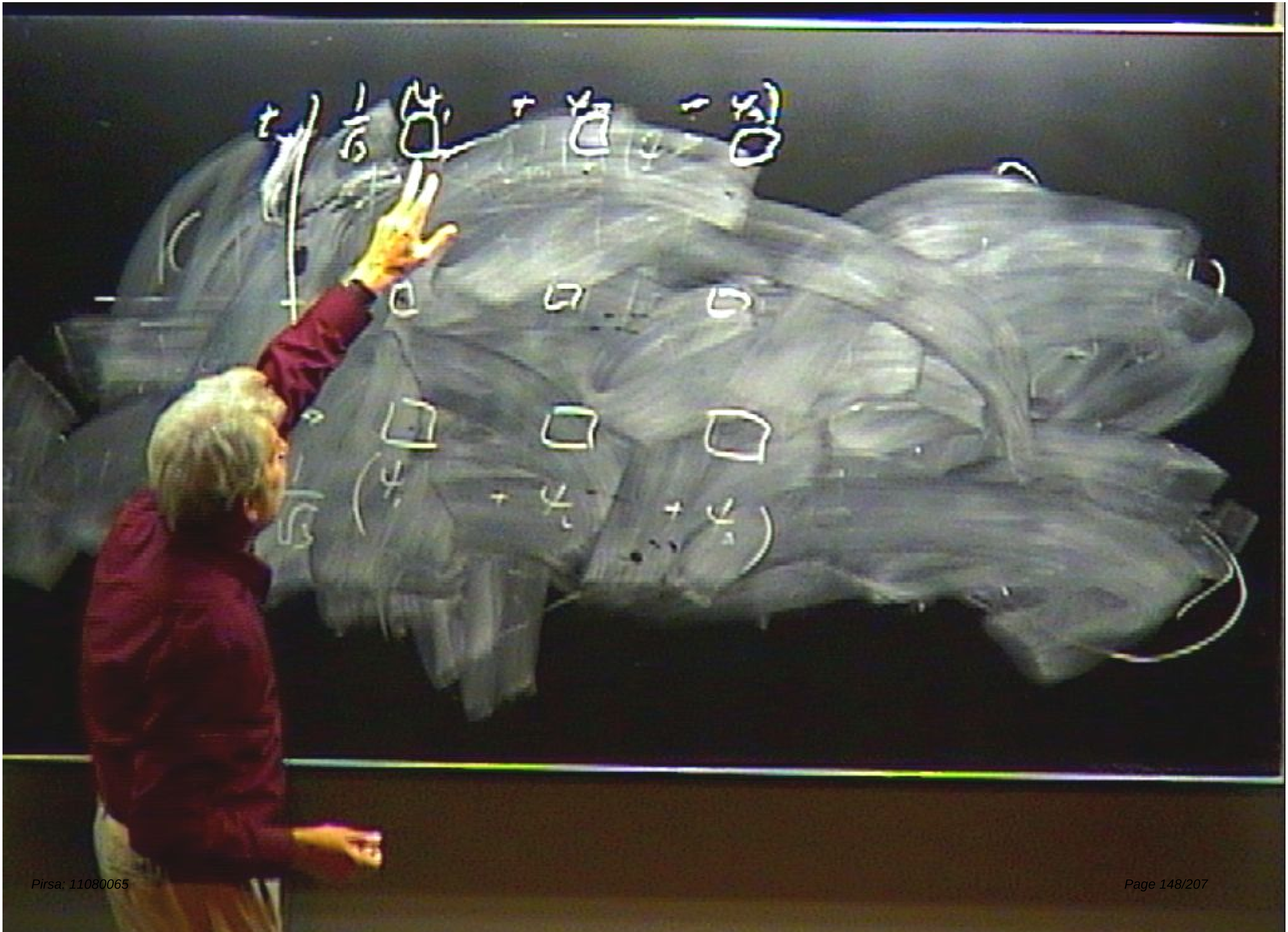


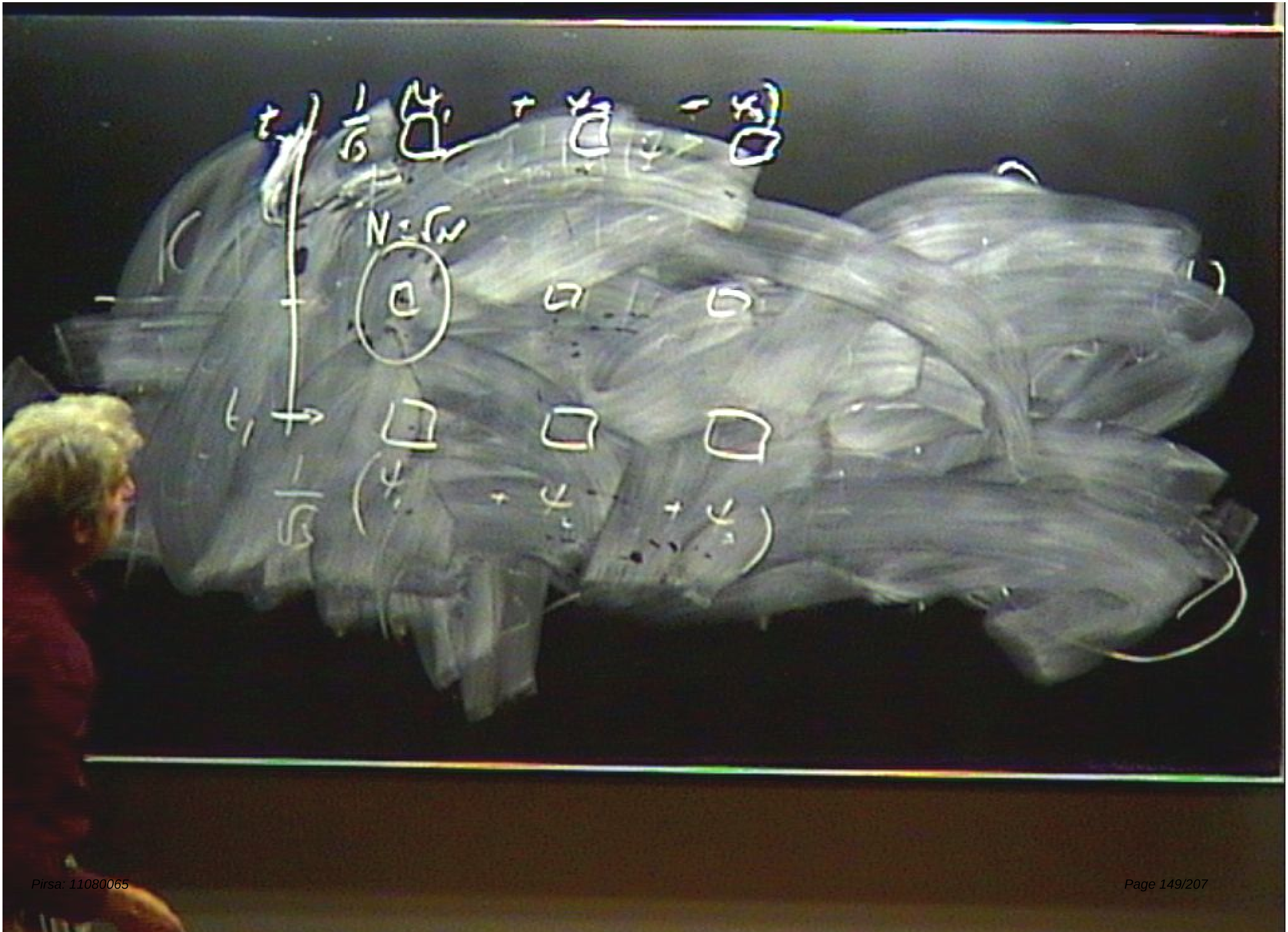


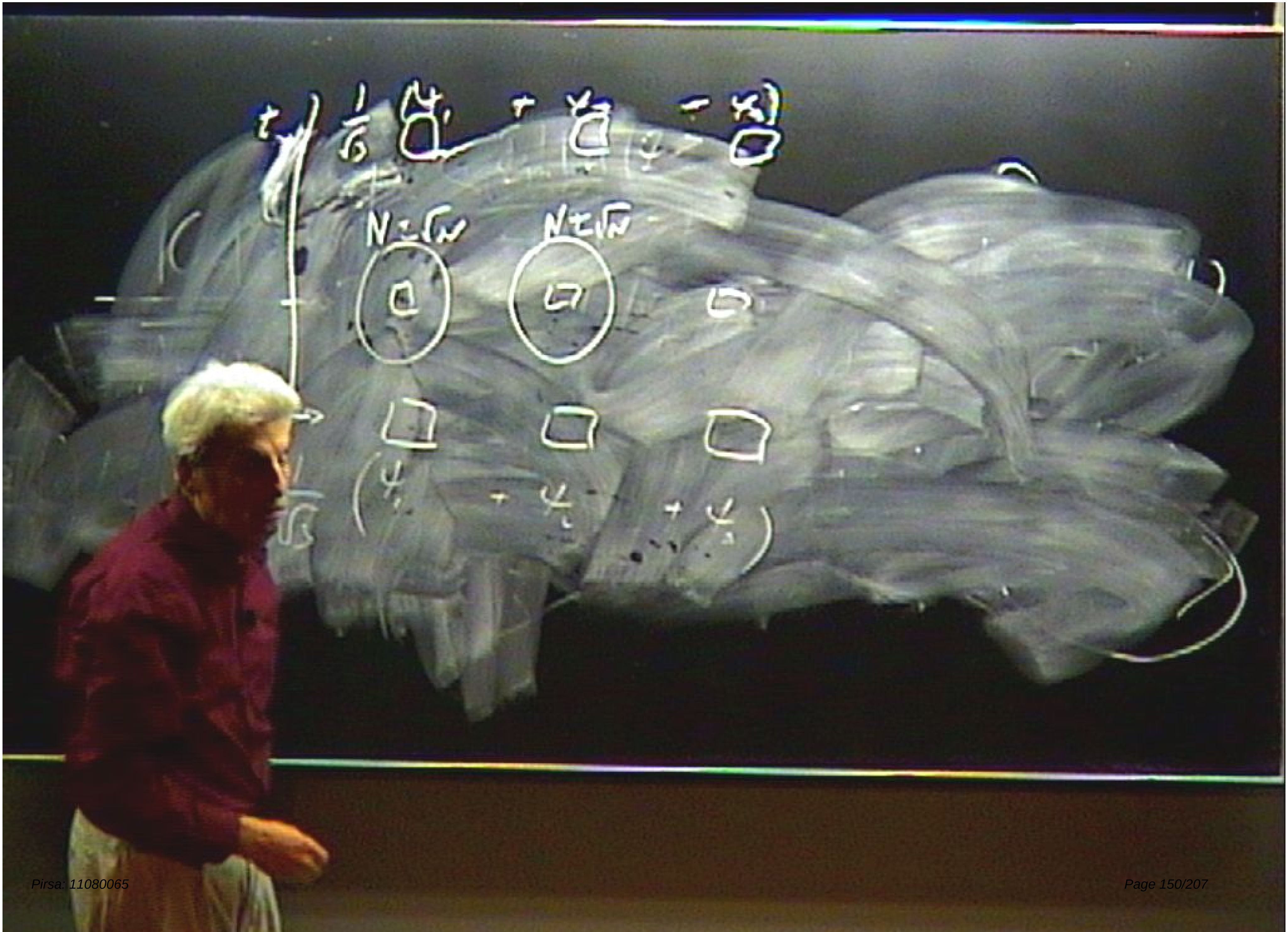

t
1/√3 (ψ1 + ψ2 + ψ3)

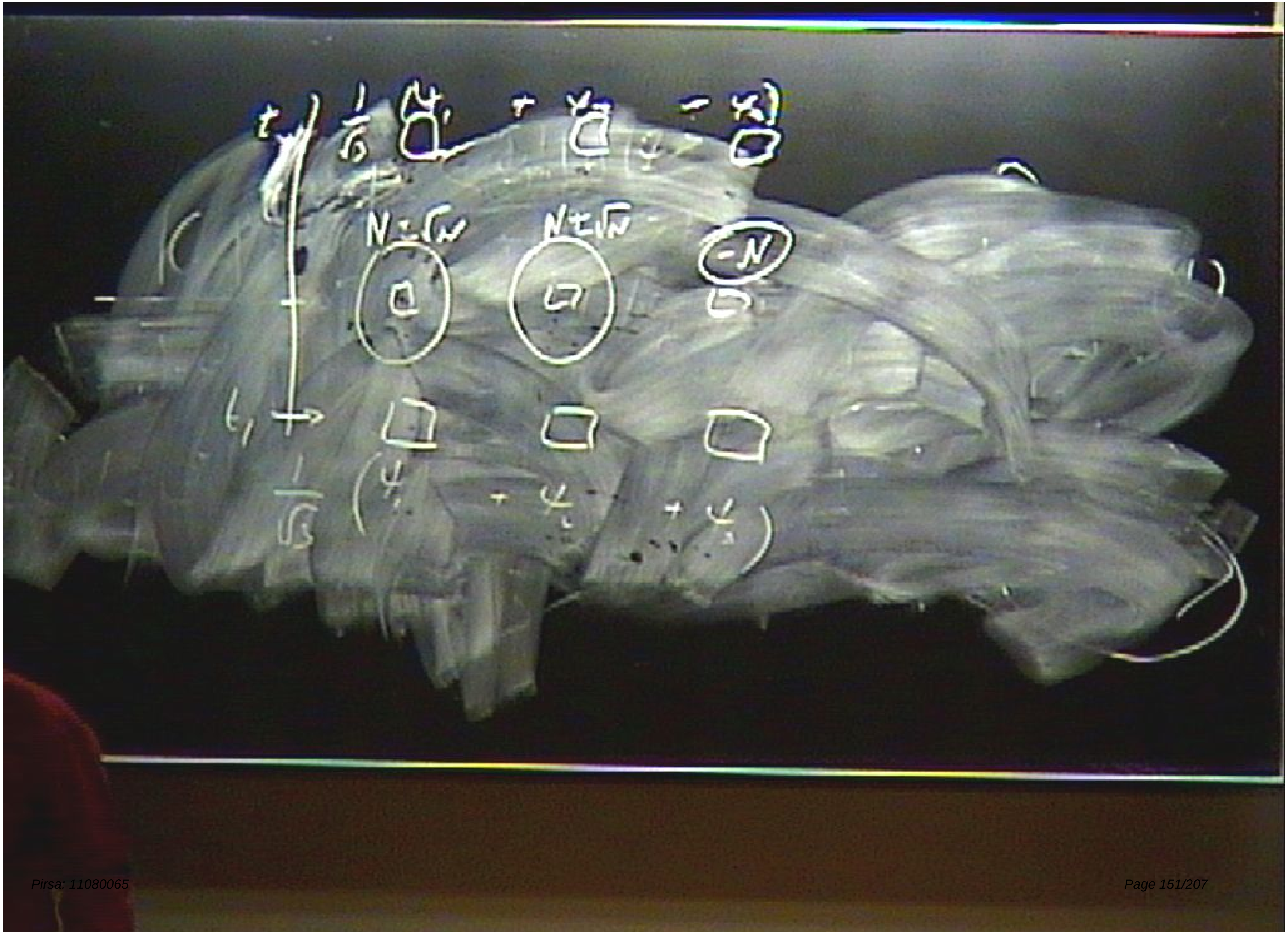


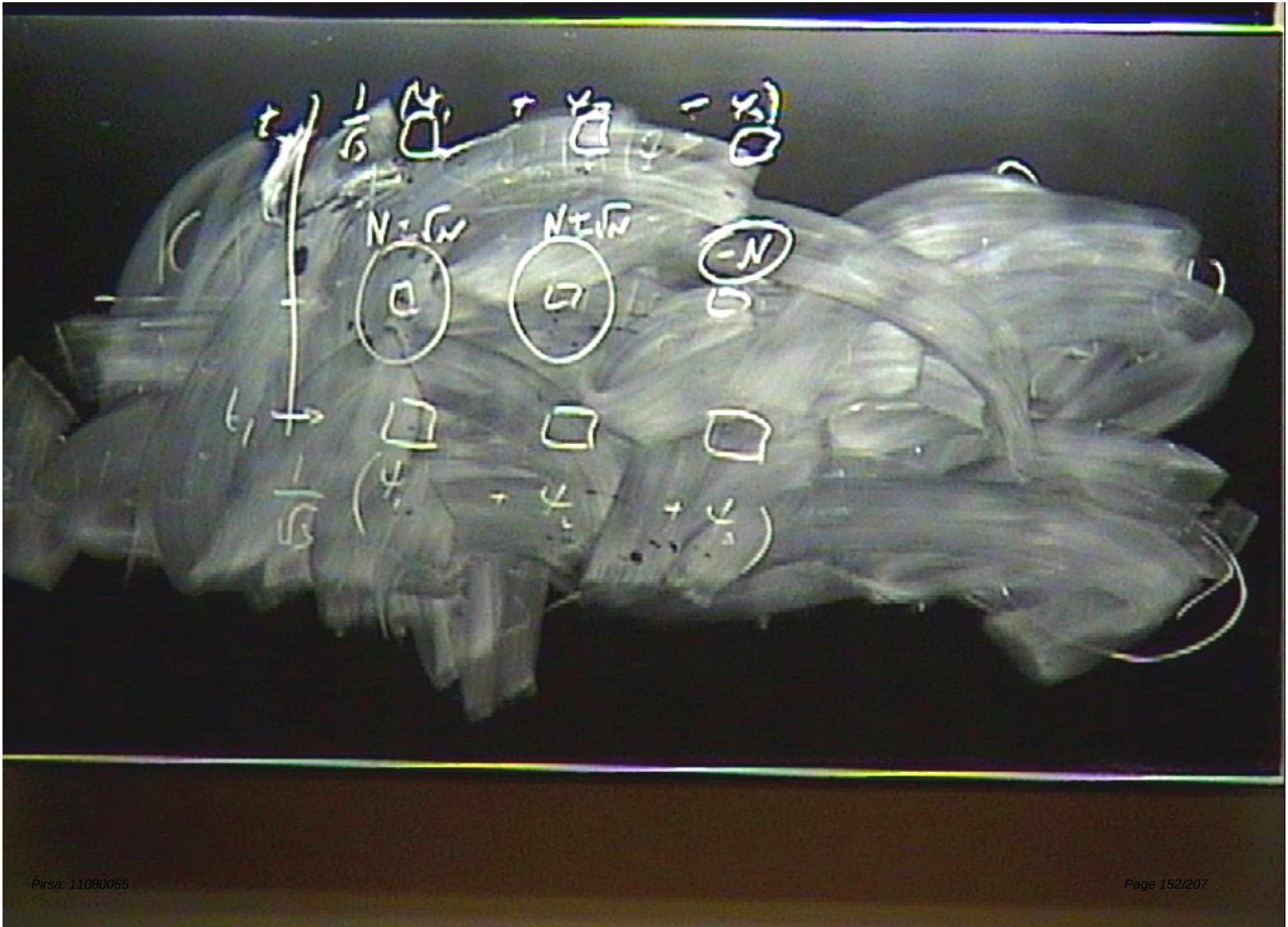


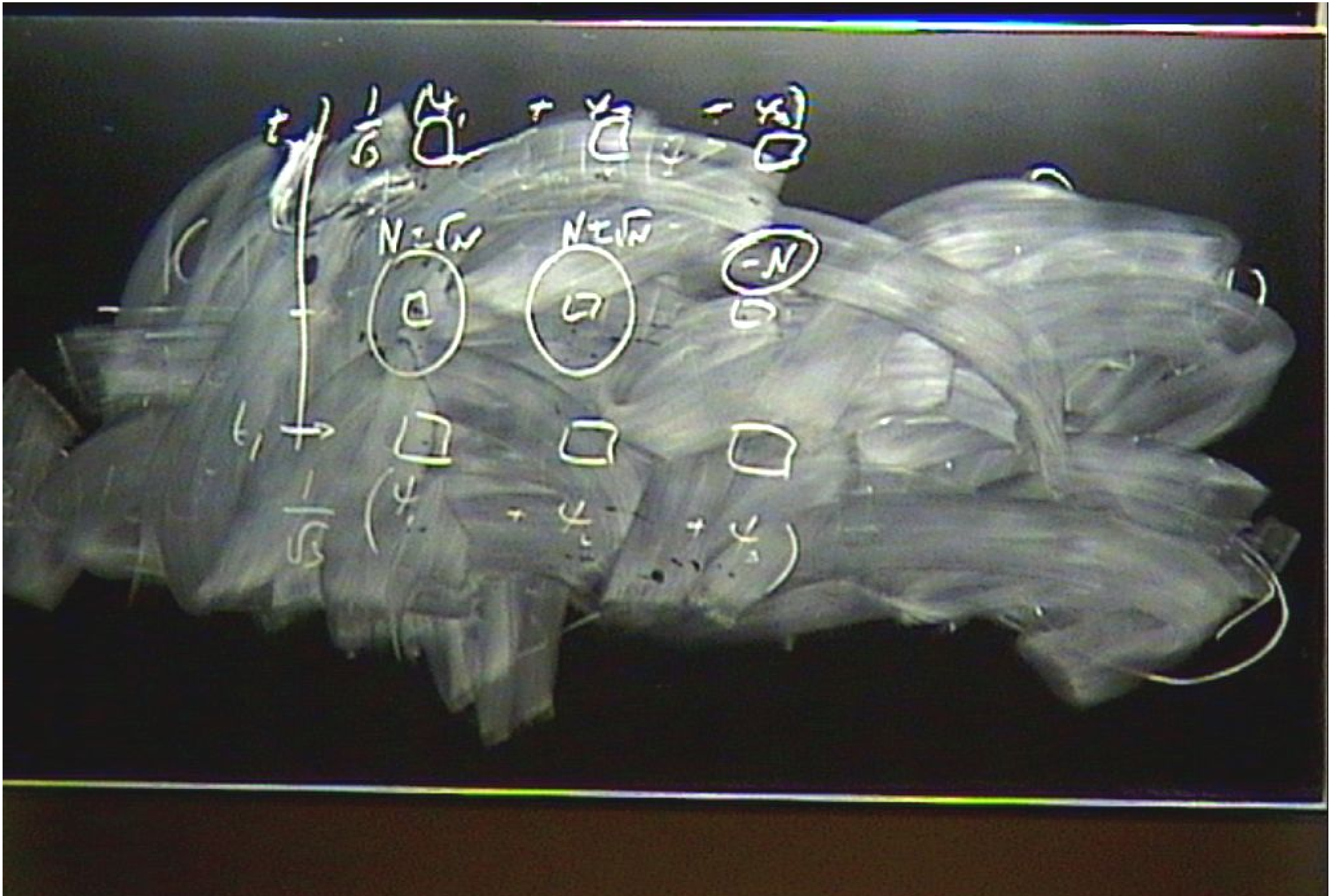


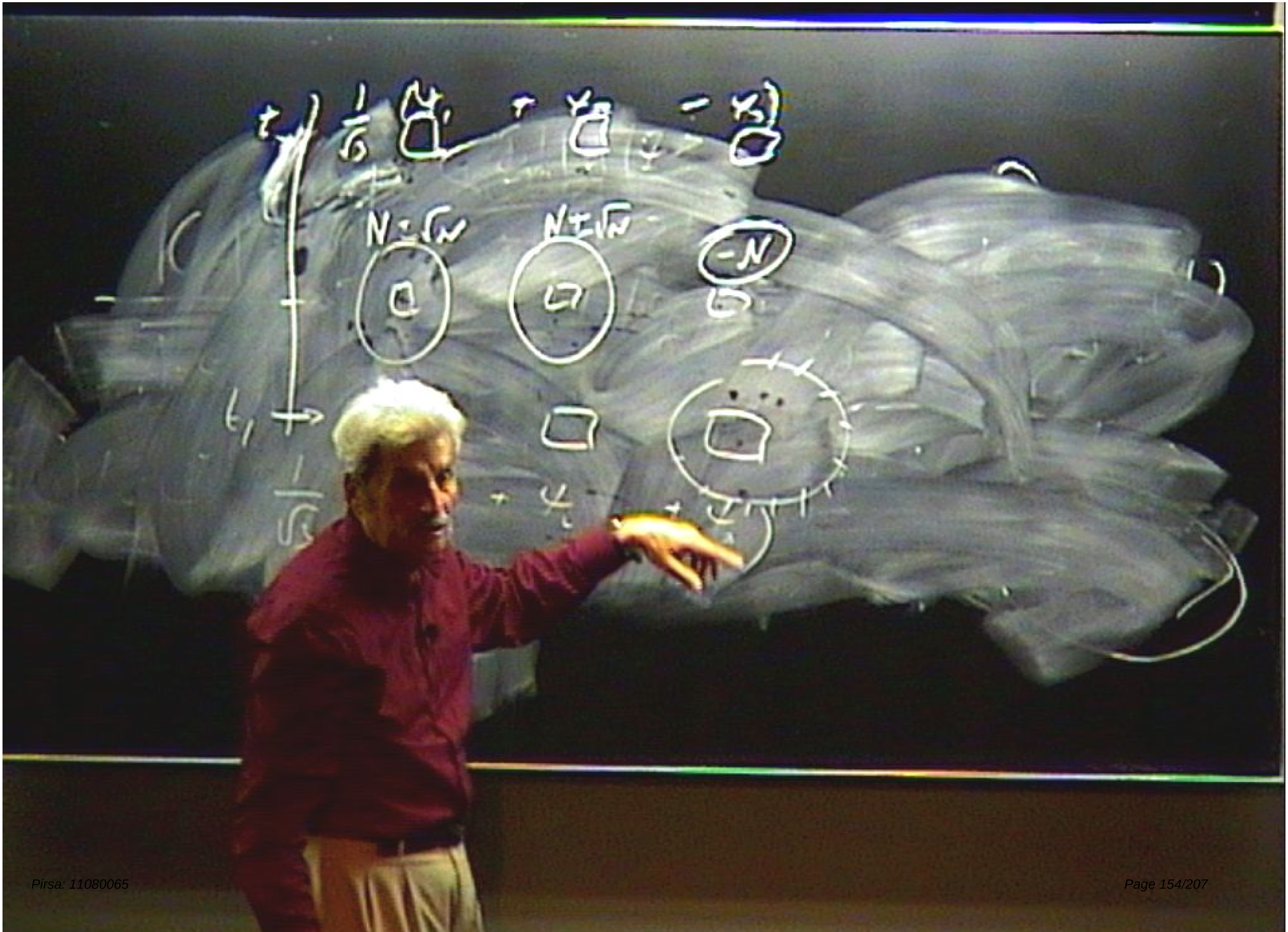


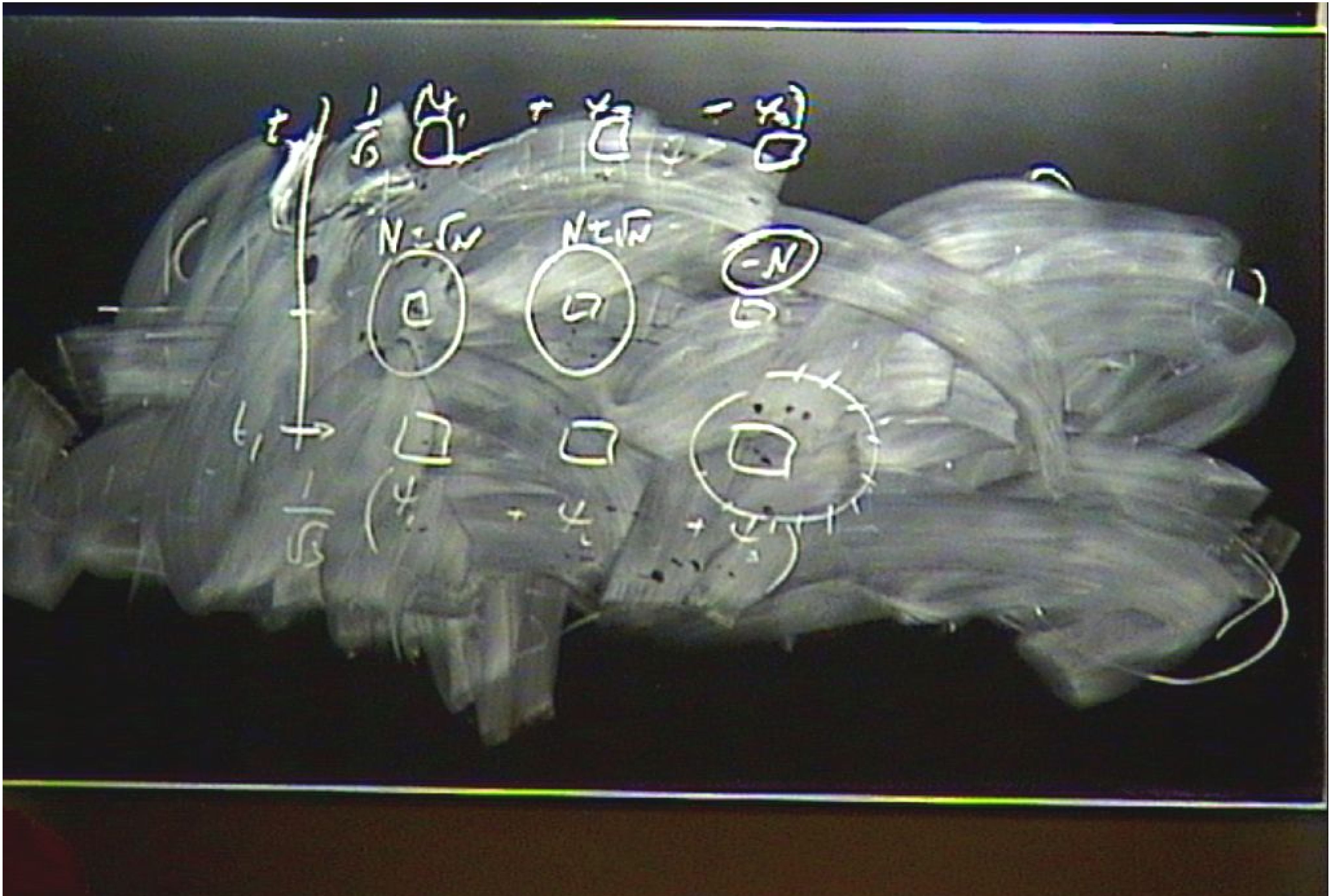

N ± √N
N ± √N


N ± √N
N ± √N
-N

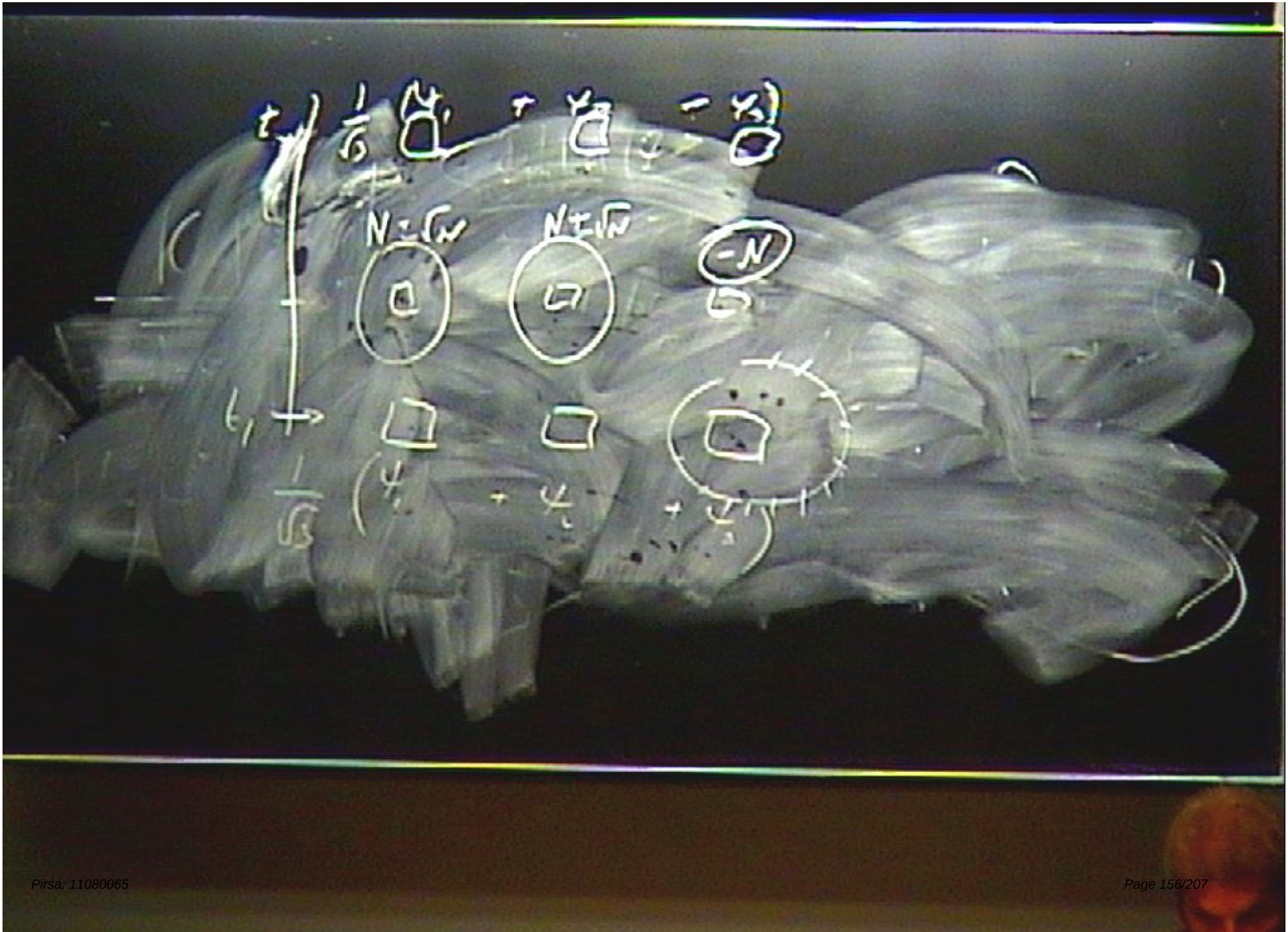

N ± √N
N ± √N
−N

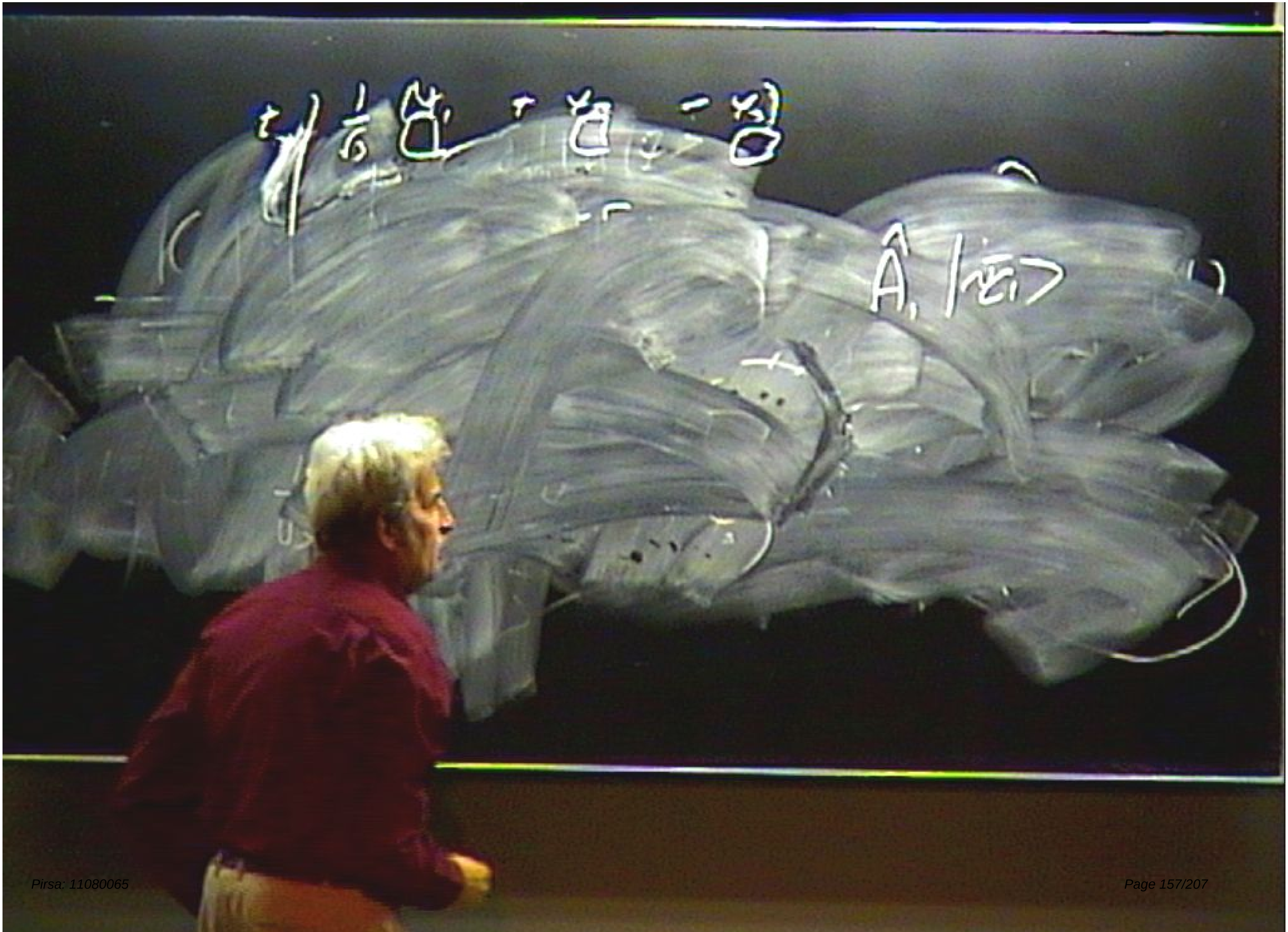

N ± √N
N ± √N
-N

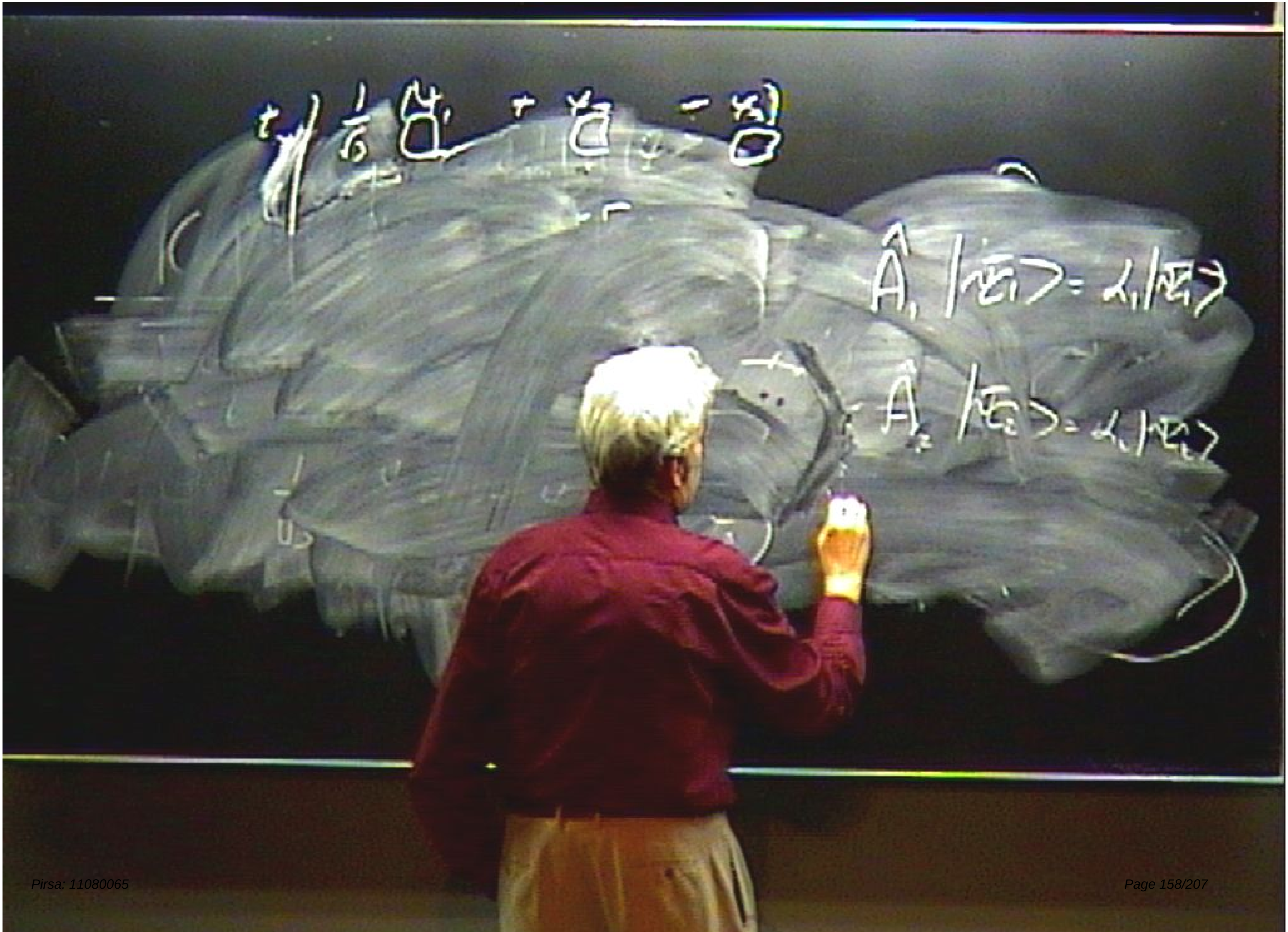

N±√N
N±√N
-N

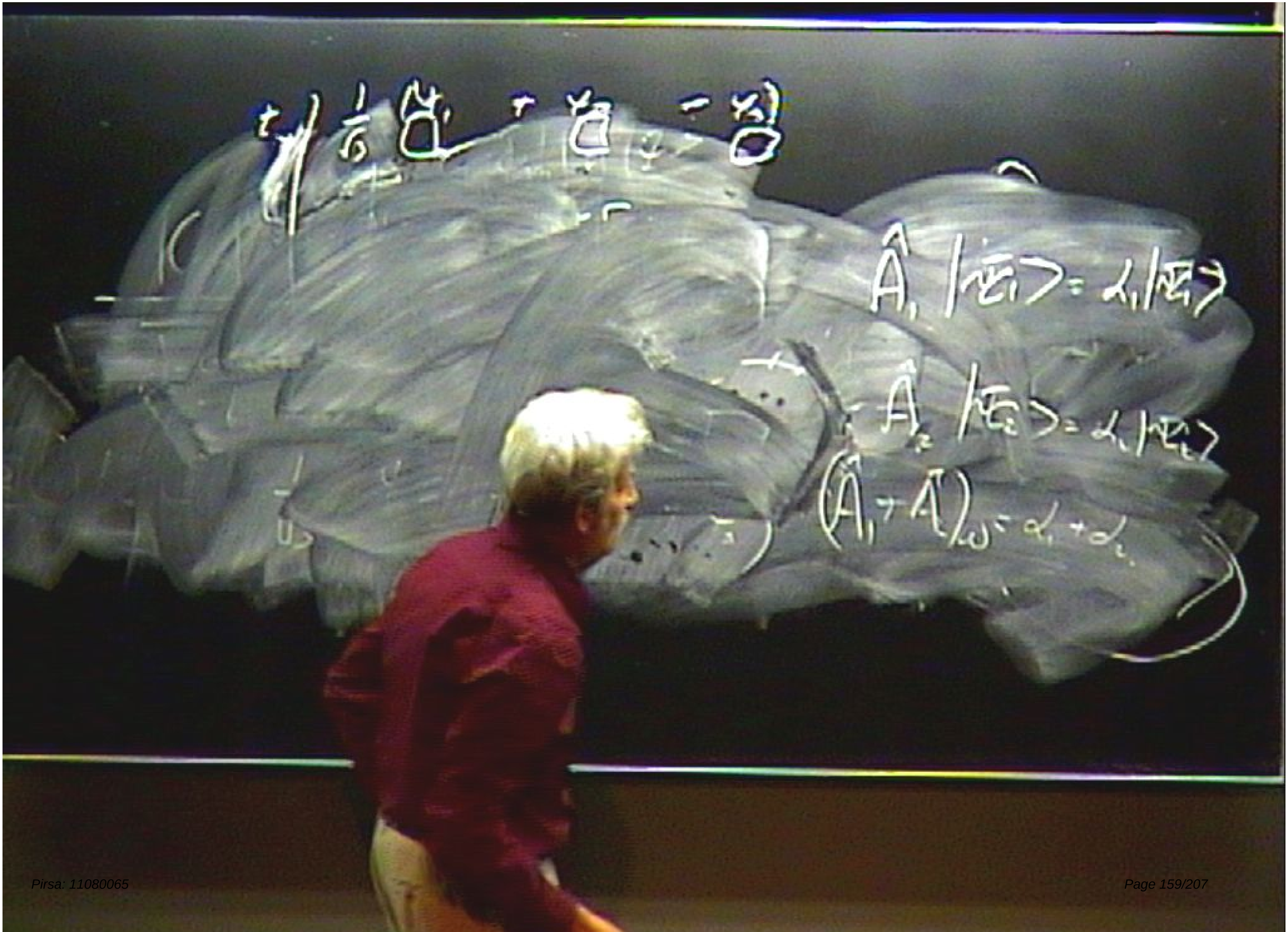


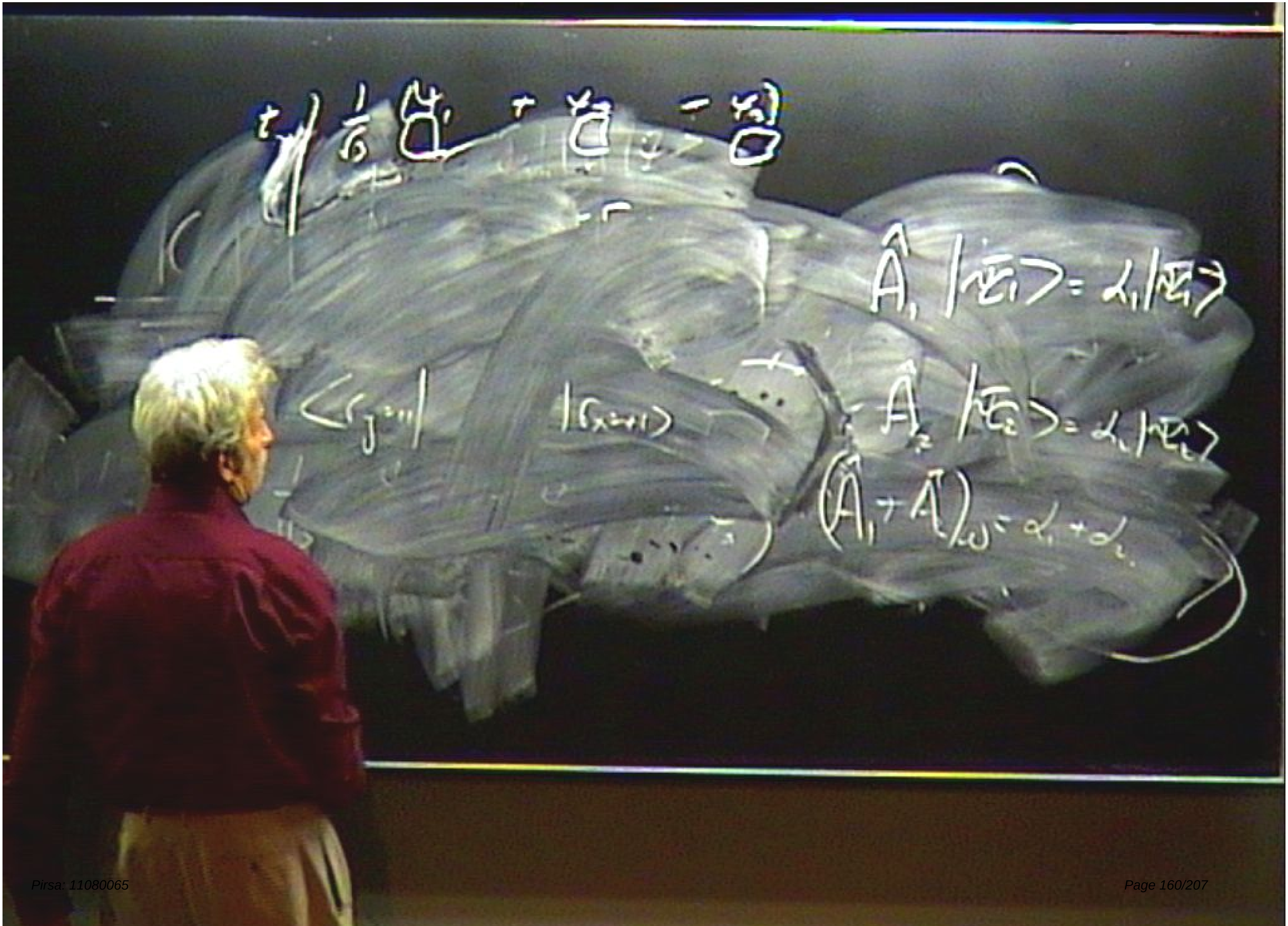
N ± √N
N ± √N
-N

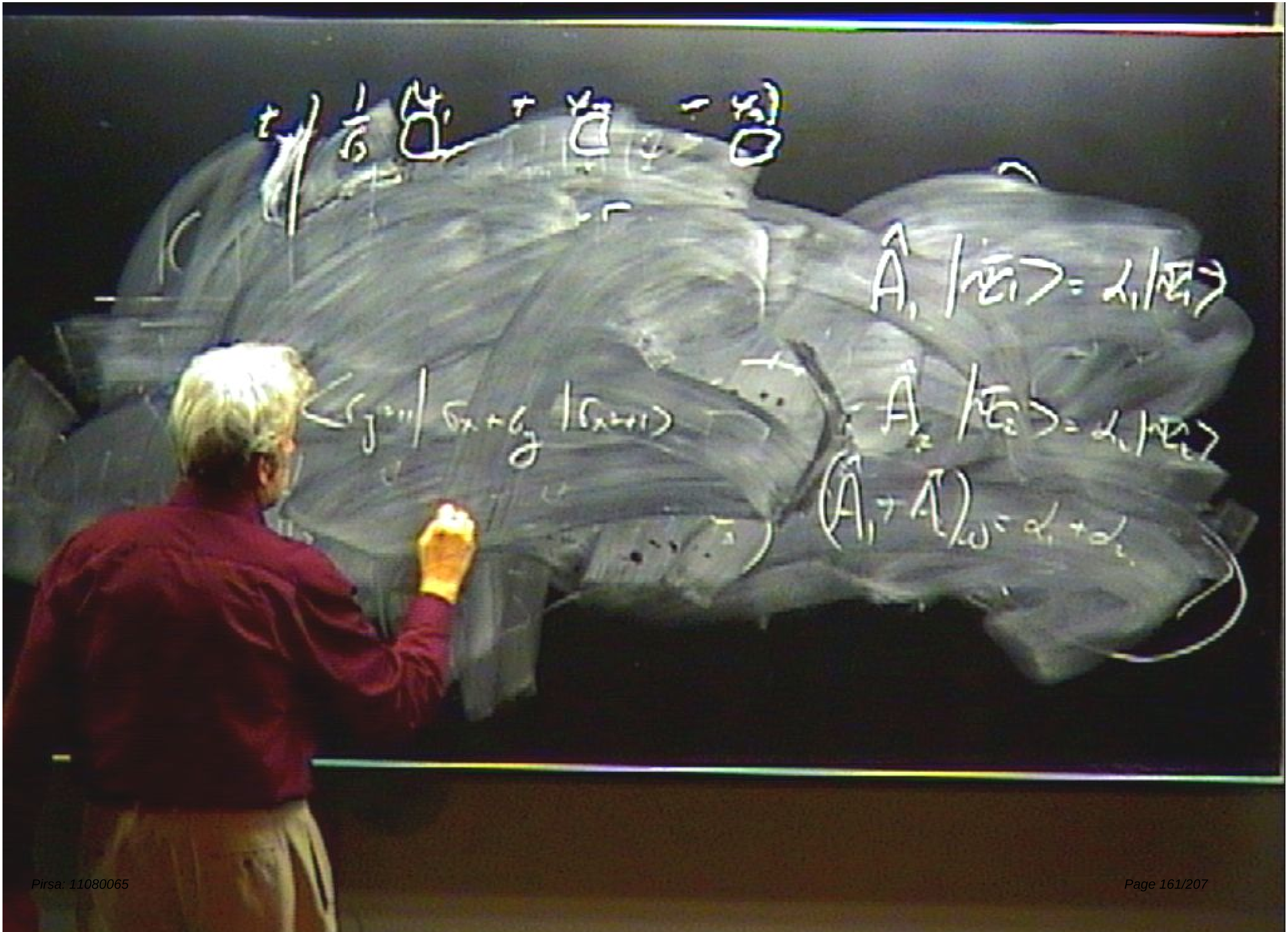


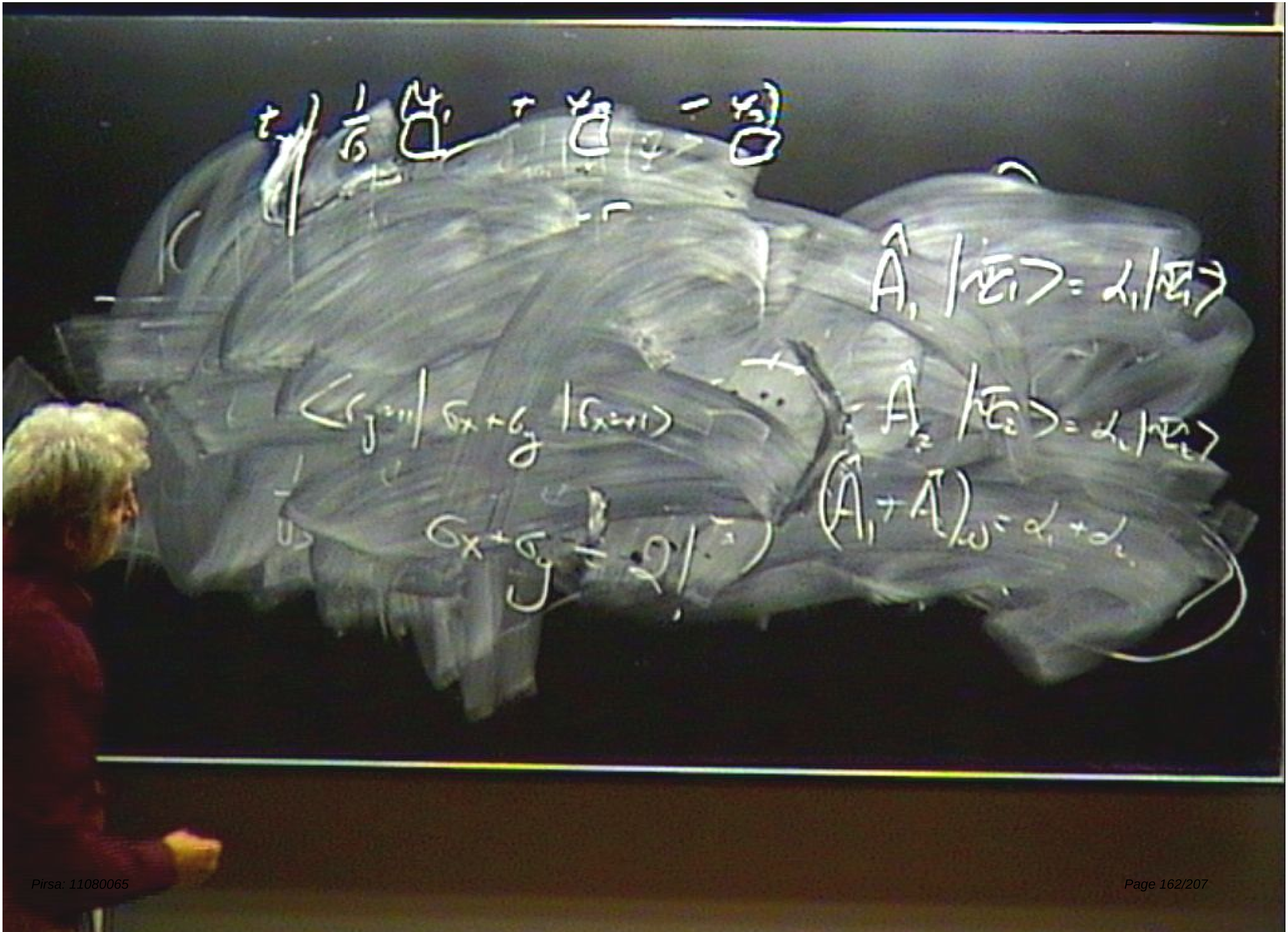


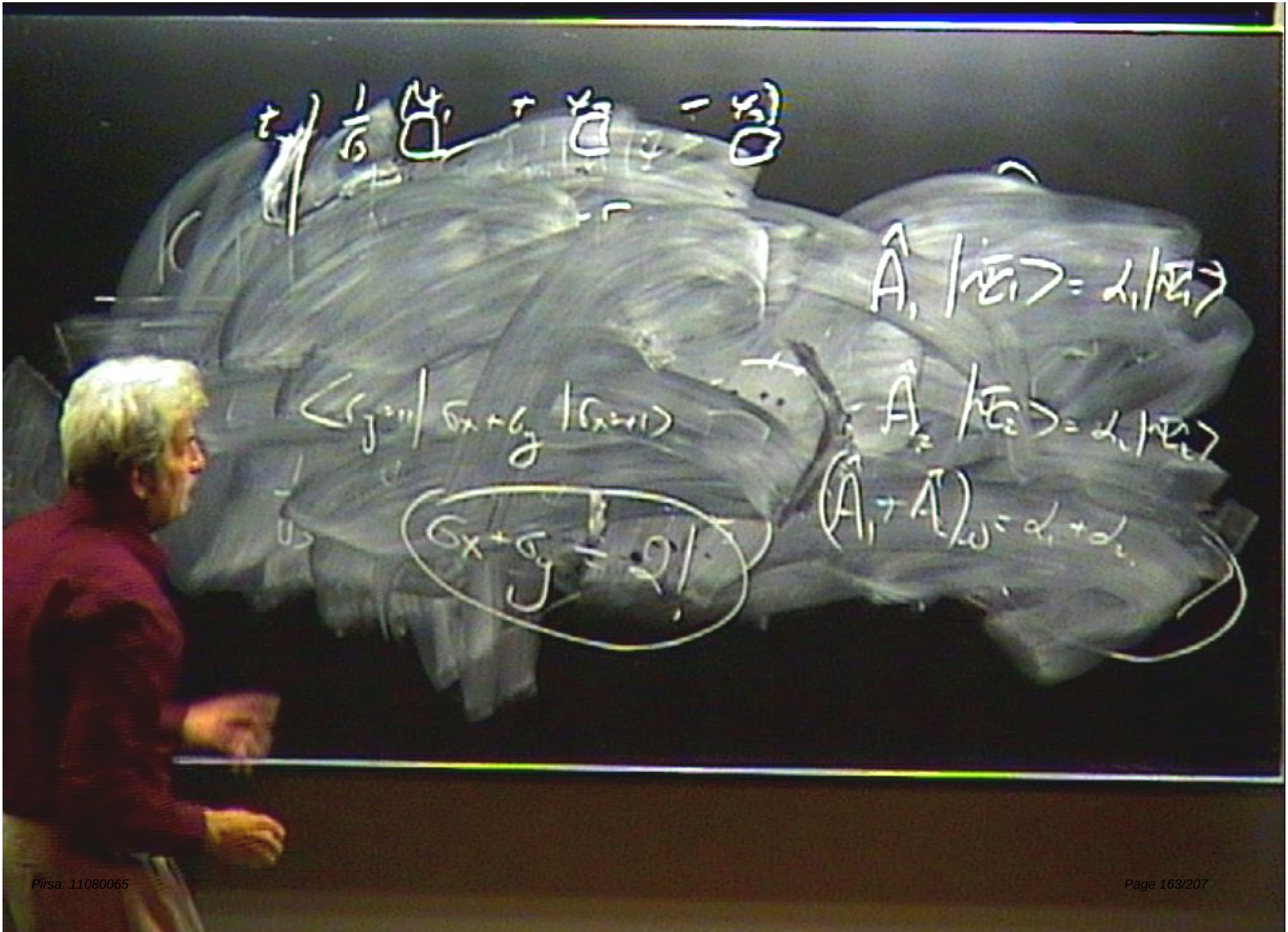


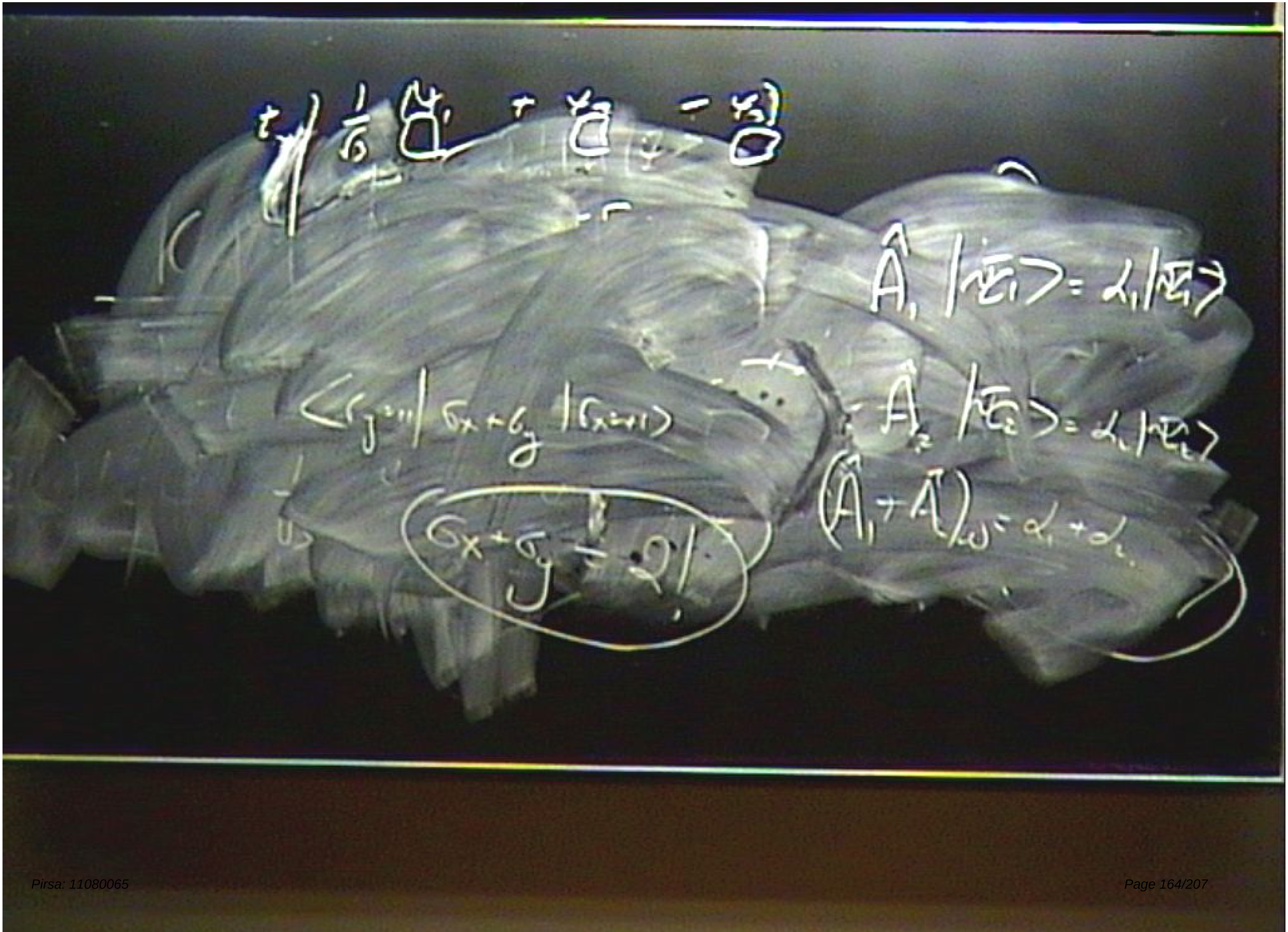

Â₁ |ξ₁> = α₁|ξ₁>
Â₂ |ξ₂> = α₂|ξ₂>
(Â₁ + Â₂)ω = α₁ + α₂

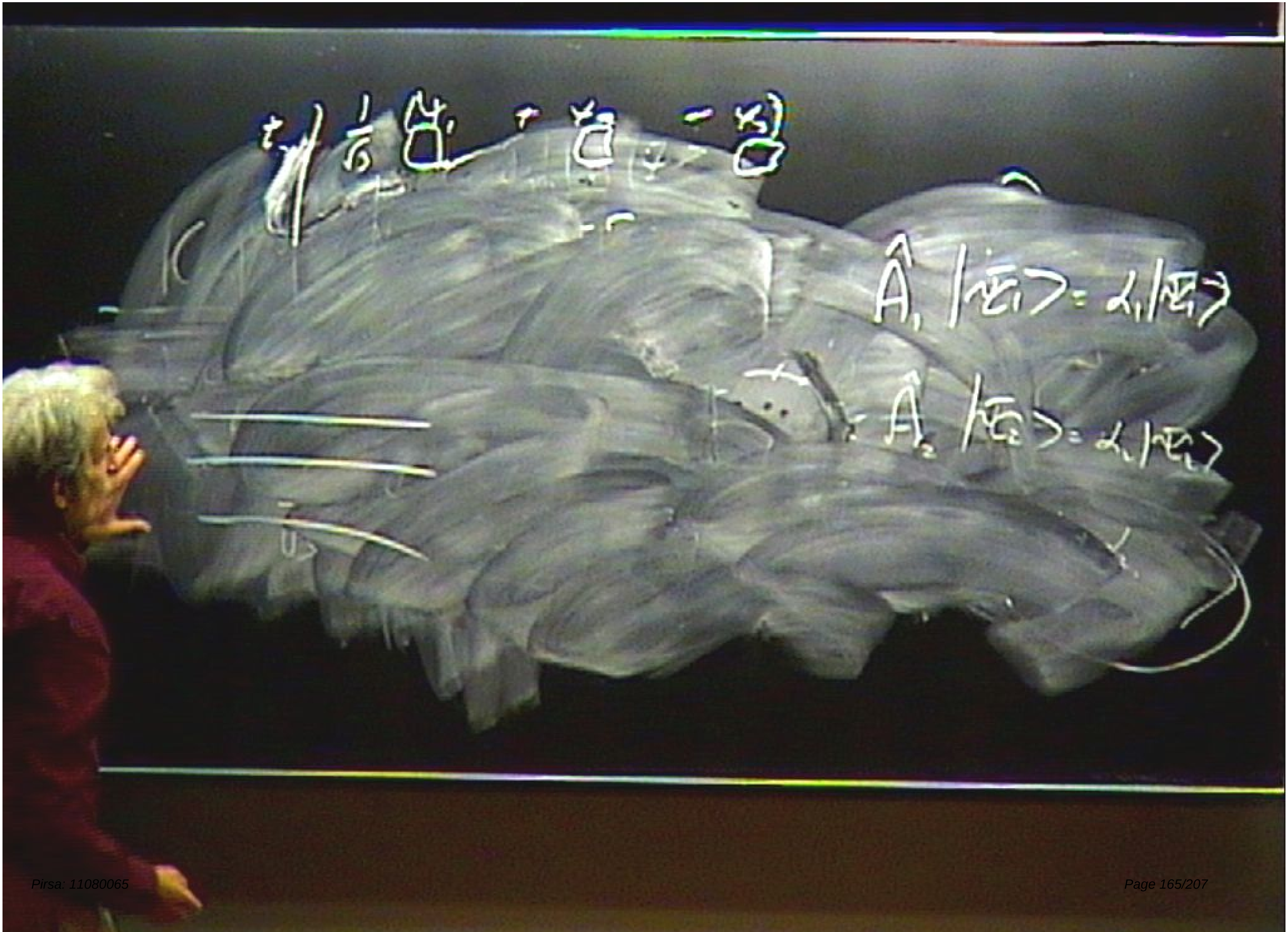

$\hat{A}_1 |E_1\rangle = \alpha_1 |E_1\rangle$
$\hat{A}_2 |E_2\rangle = \alpha_2 |E_2\rangle$
$(\hat{A}_1 + \hat{A}_2)_\omega = \alpha_1 + \alpha_2$

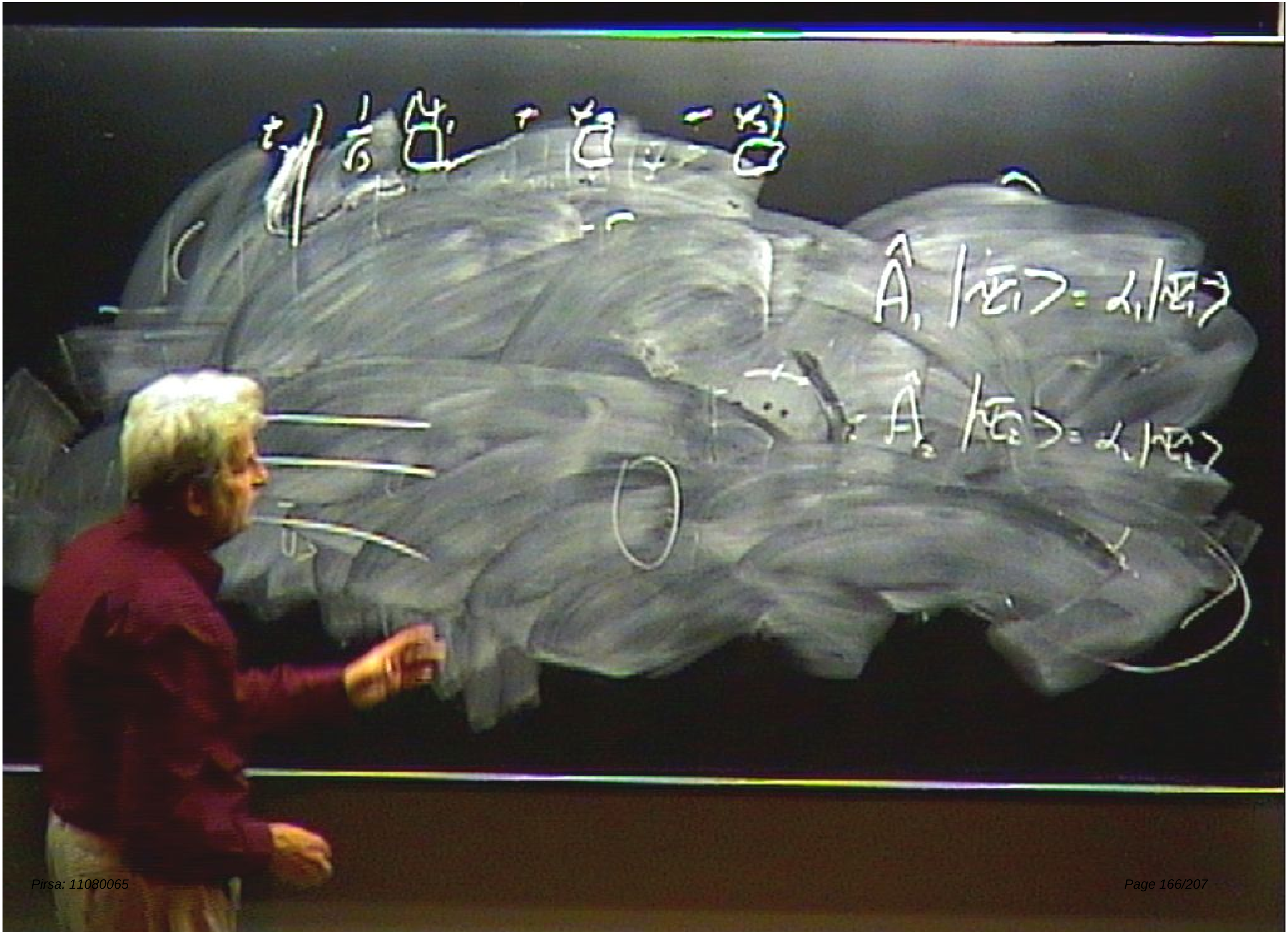


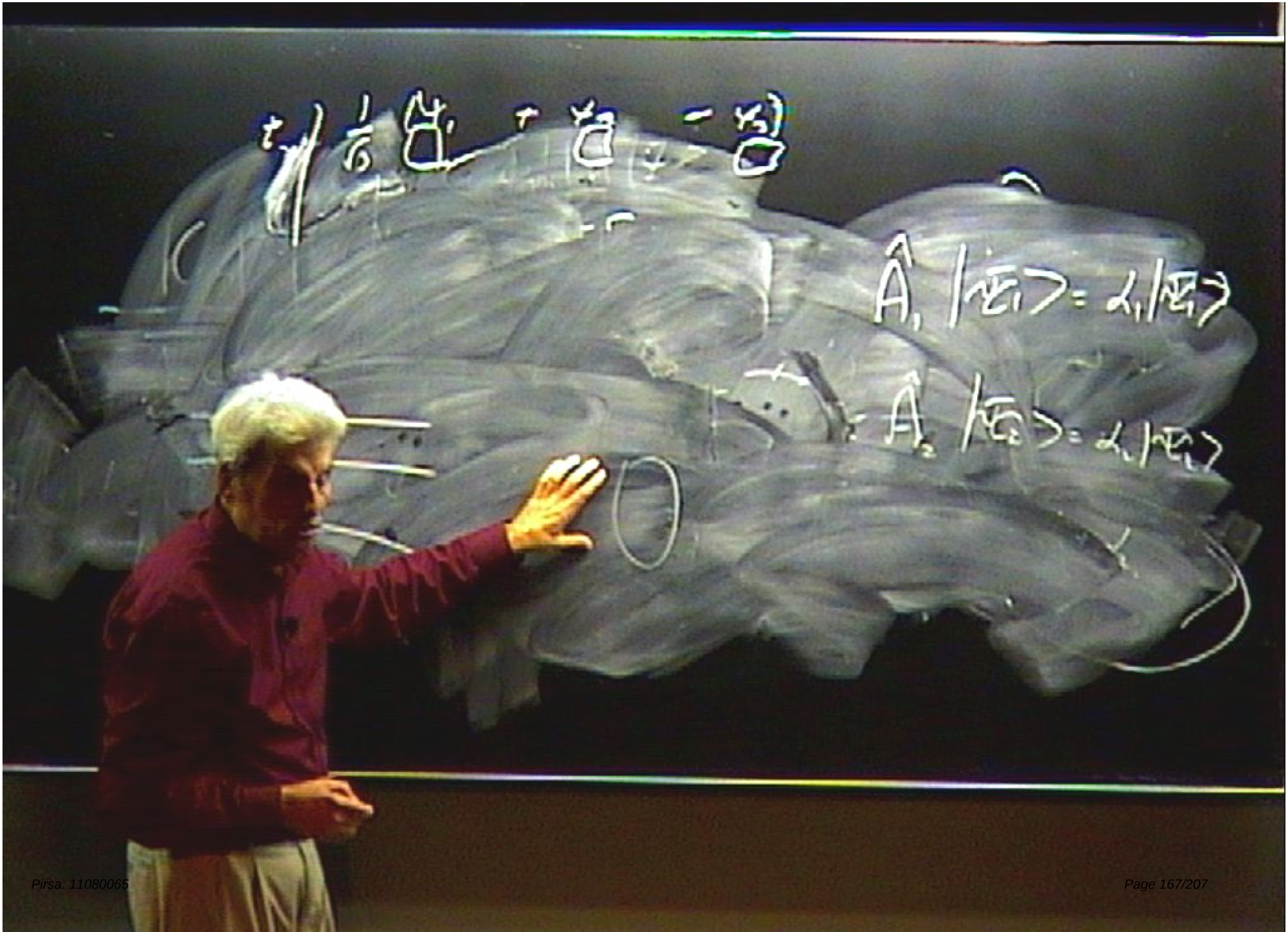


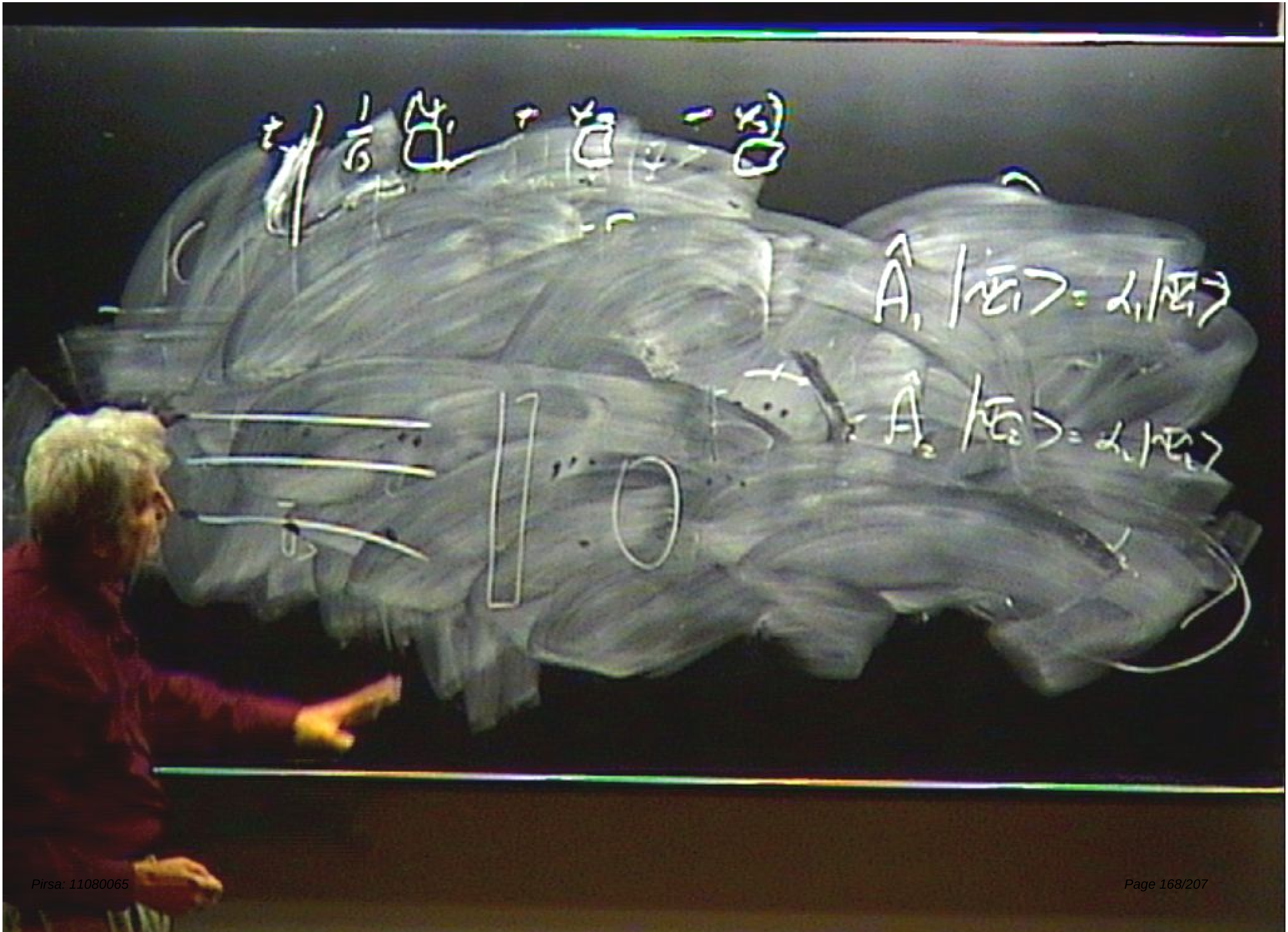


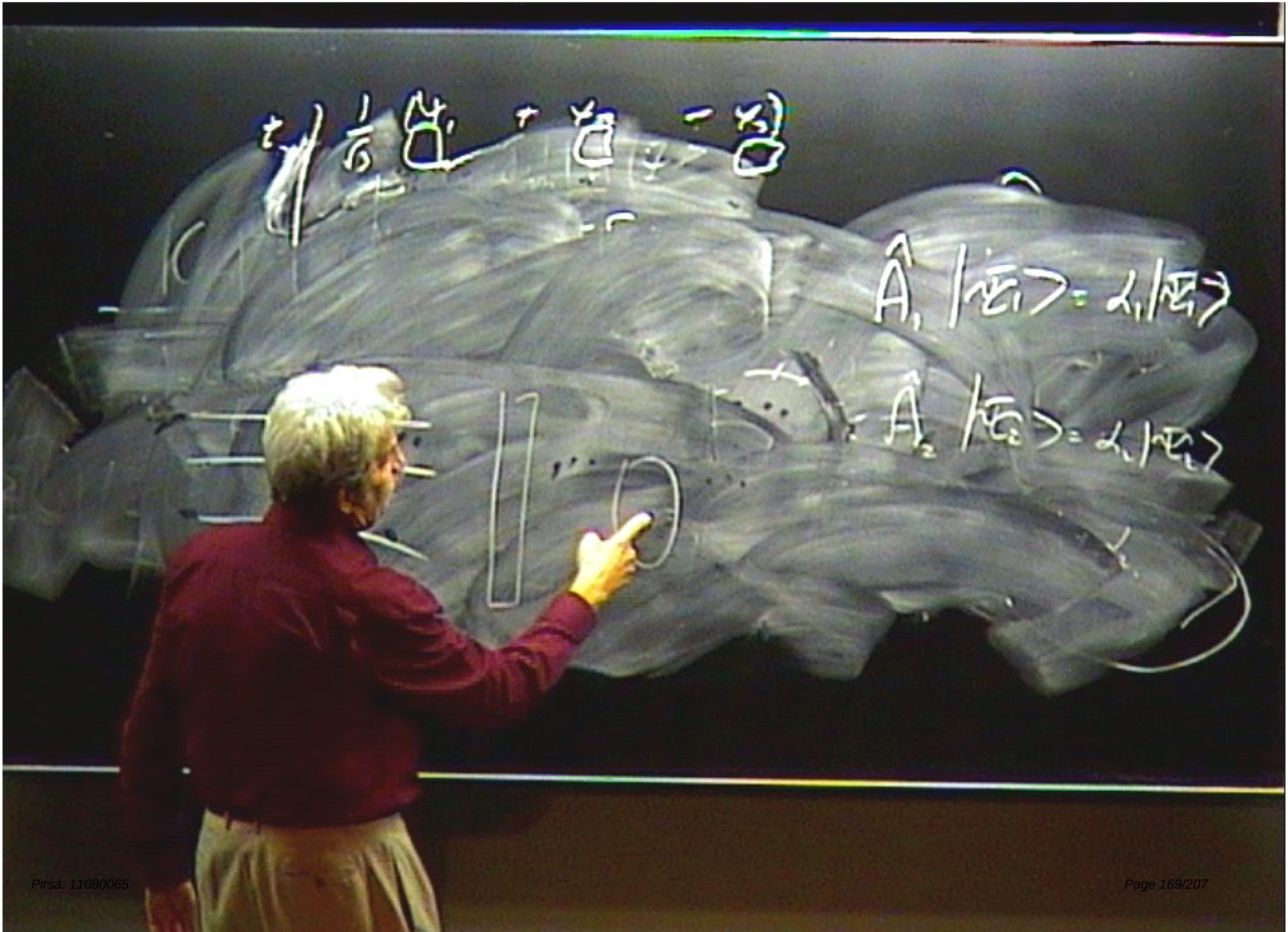

Â₁ |E₁> = α₁ |E₁>
Â₂ |E₂> = α₂ |E₂>
(Â₁ + Â₂)ω = α₁ + α₂
σx + σy = 2I

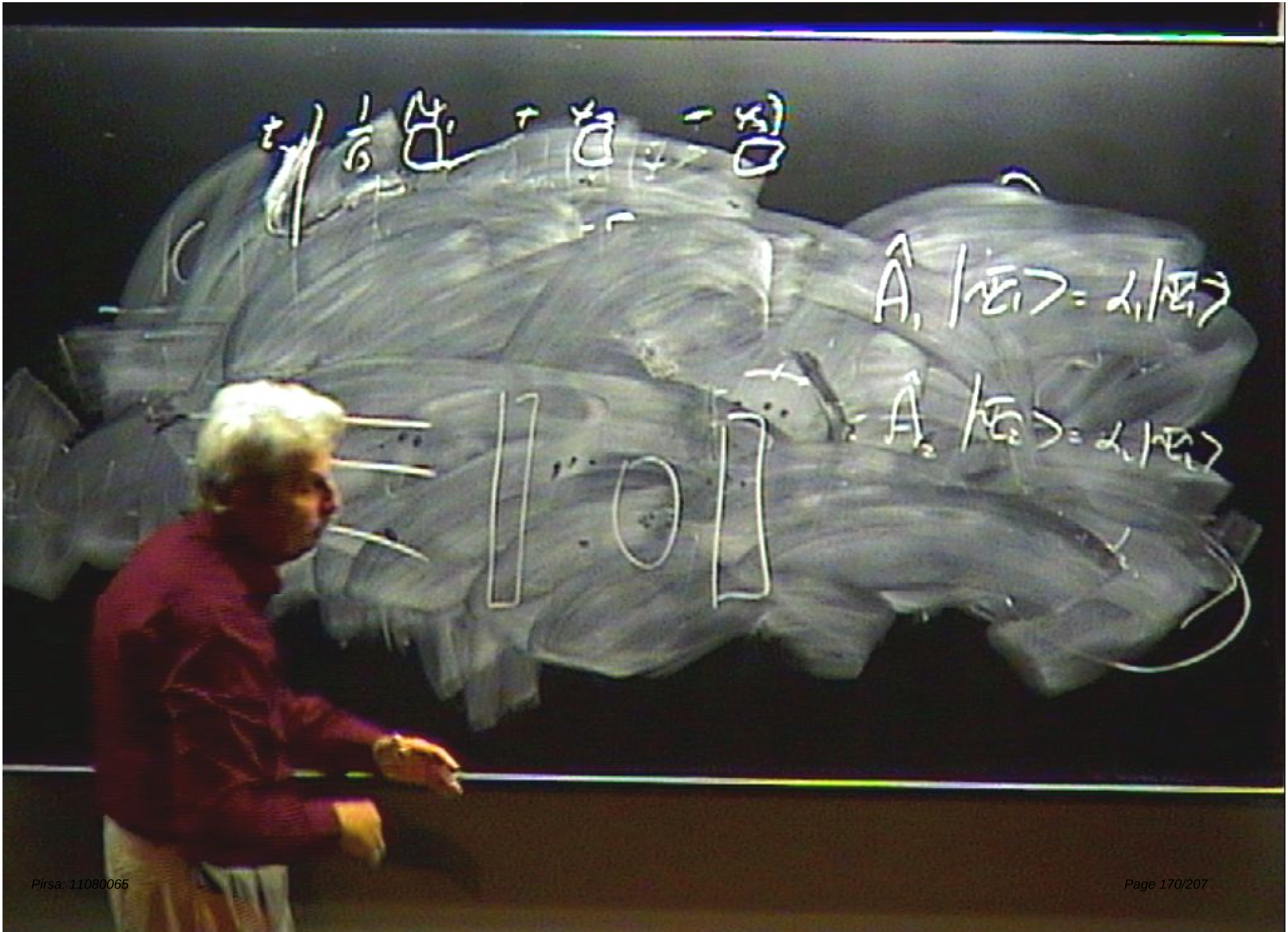


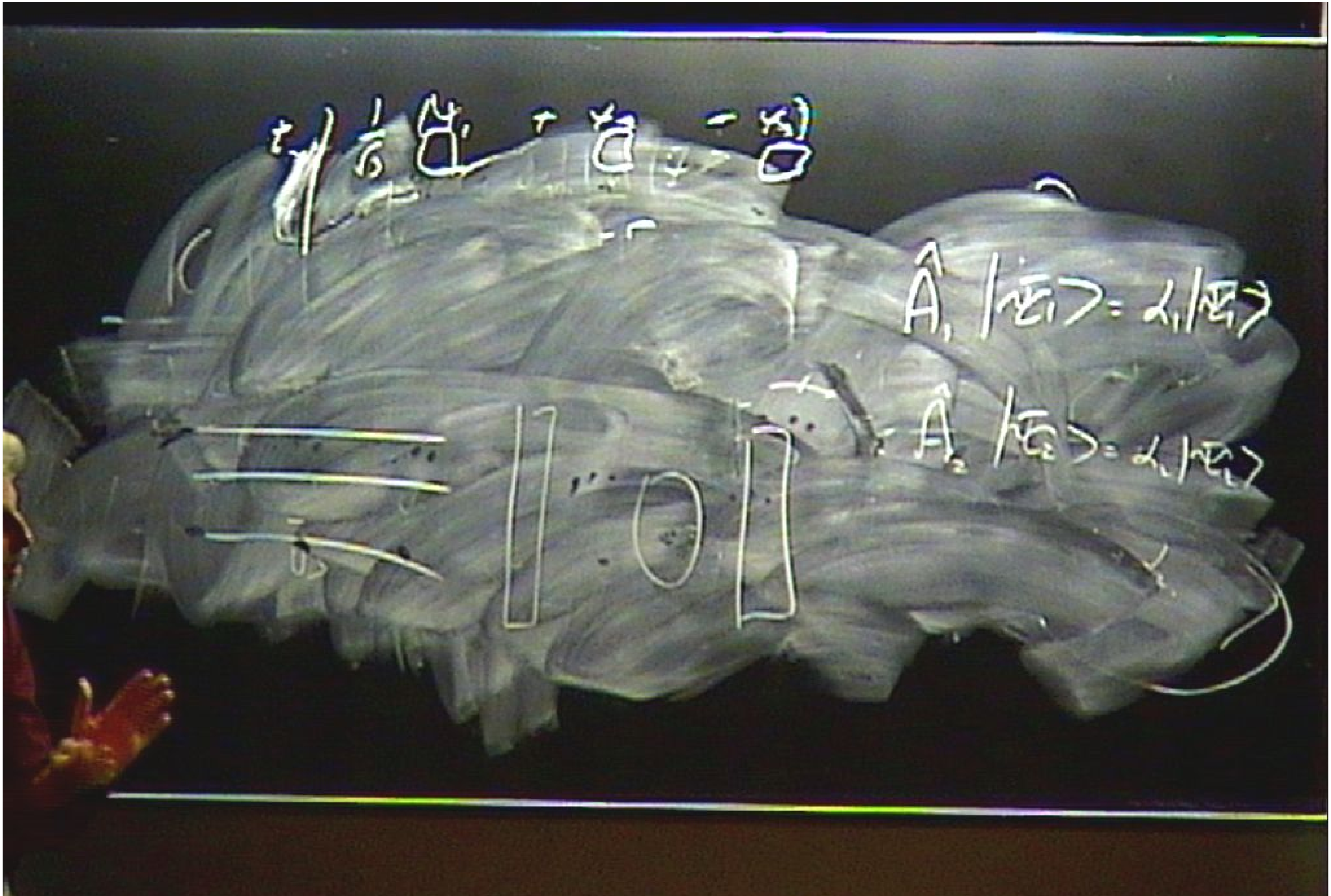



$\hat{A}_1 |\xi_1\rangle = \alpha_1 |\xi_1\rangle$
$\hat{A}_2 |\xi_2\rangle = \alpha_2 |\xi_2\rangle$

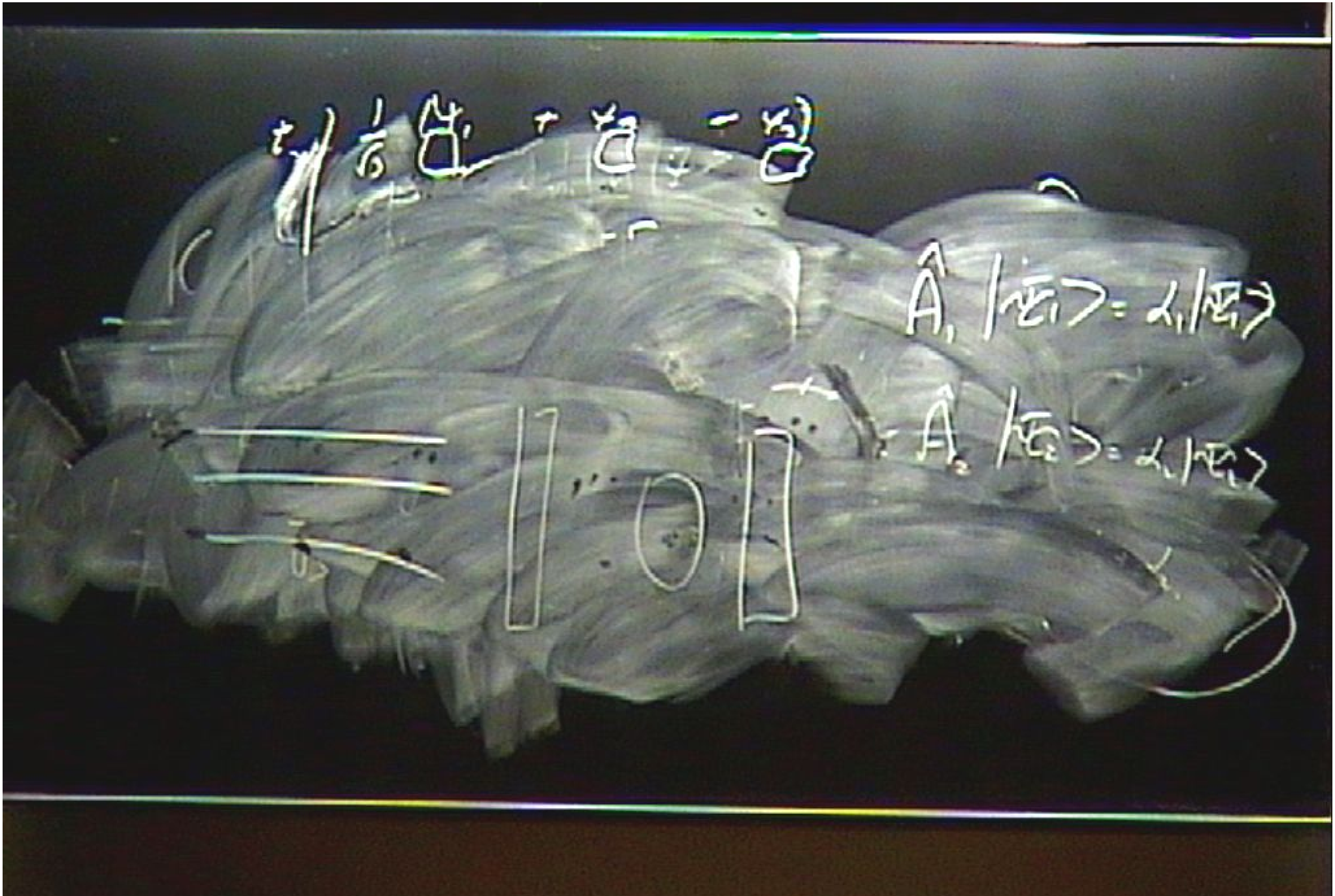

Â1 |ξ1> = α1 |ξ1>
Â2 |ξ2> = α2 |ξ2>

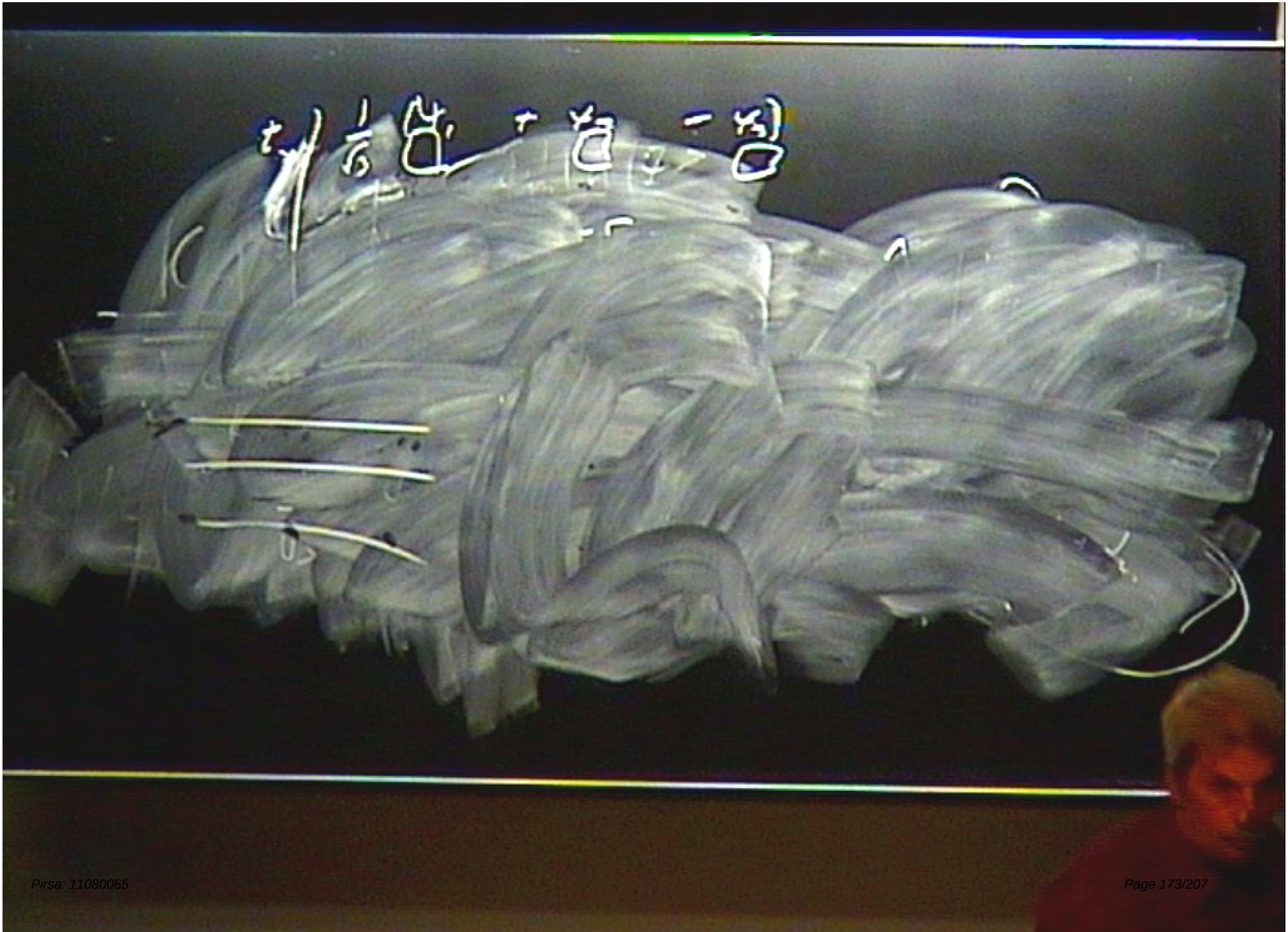


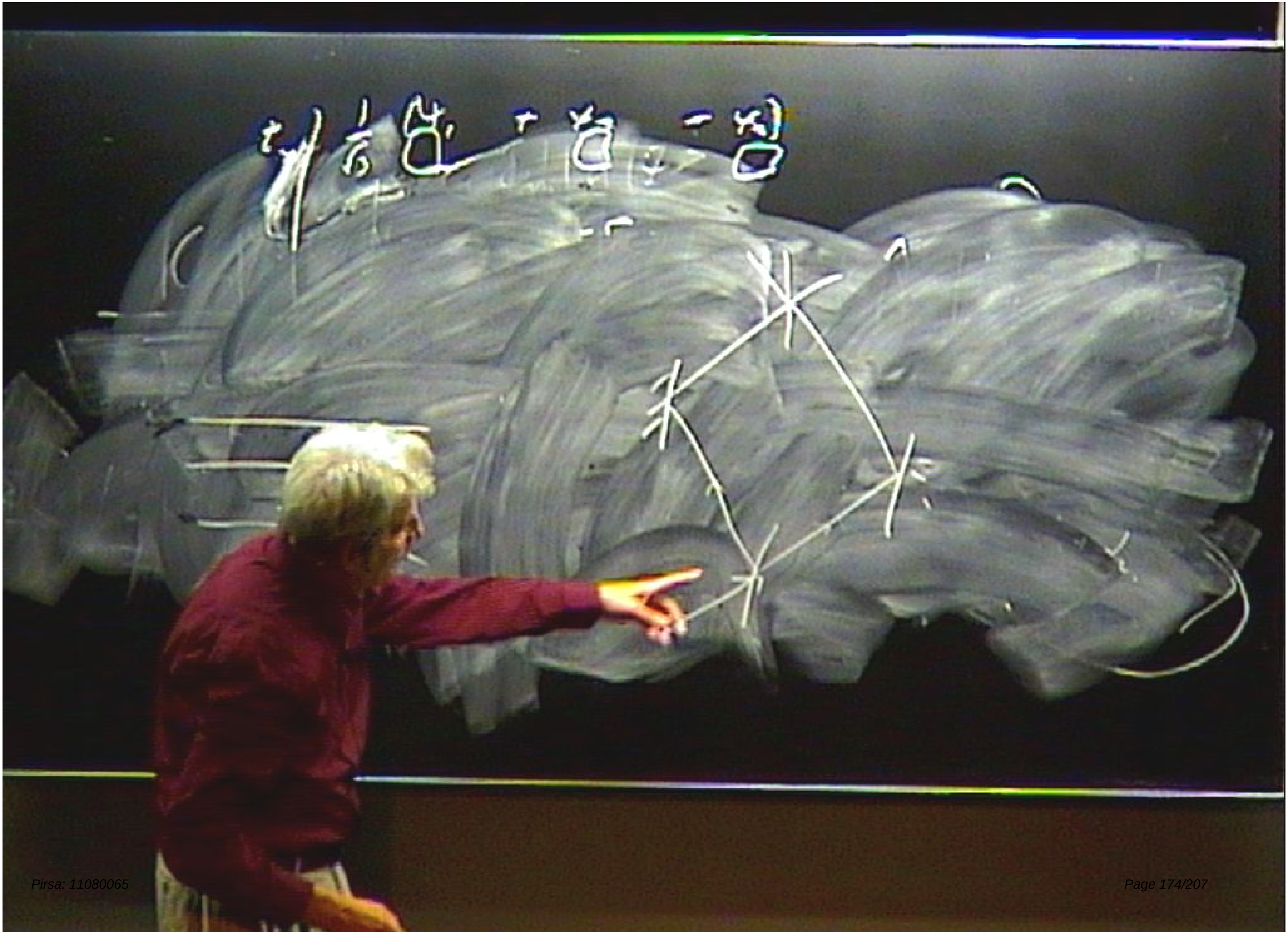


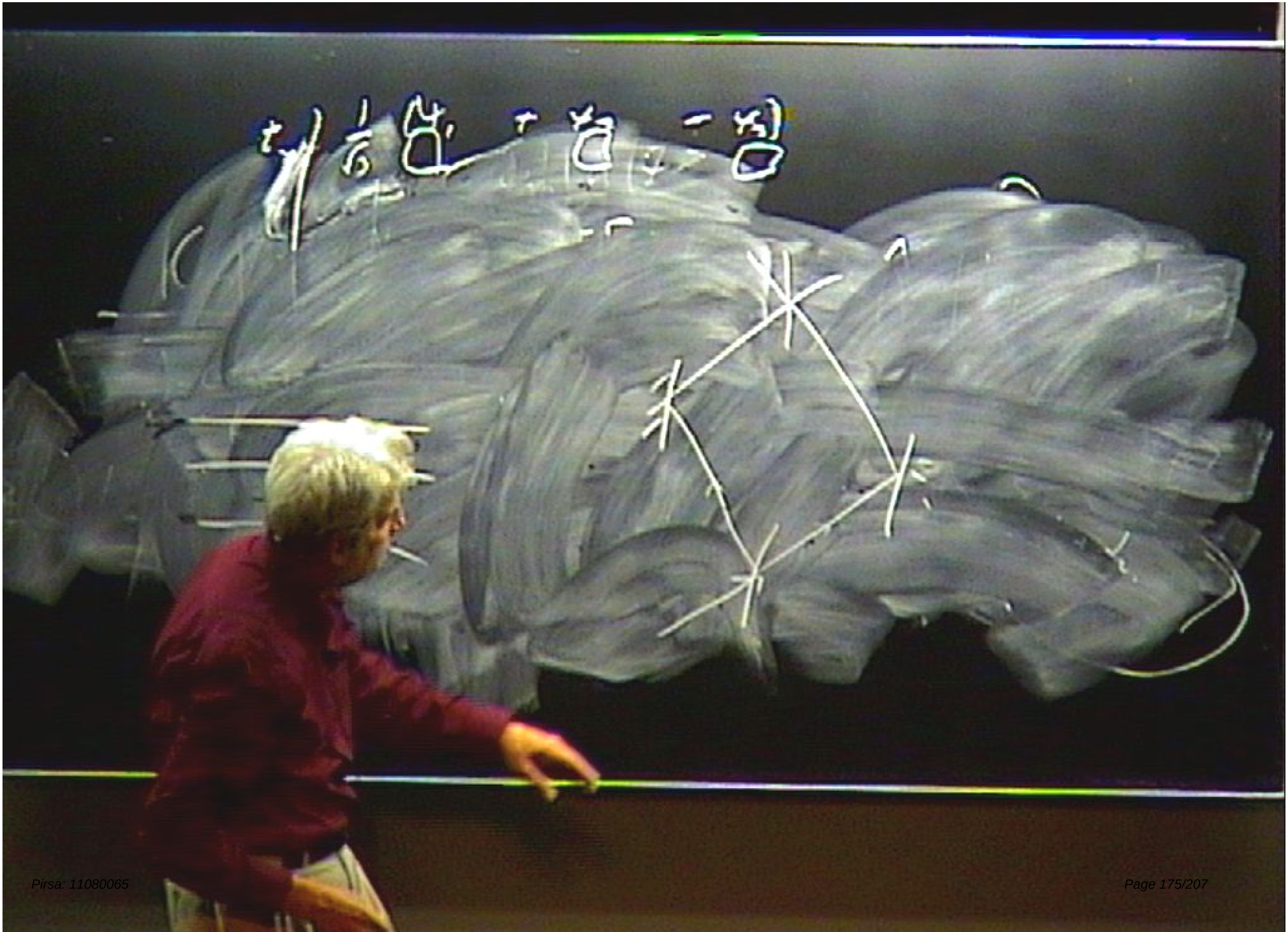


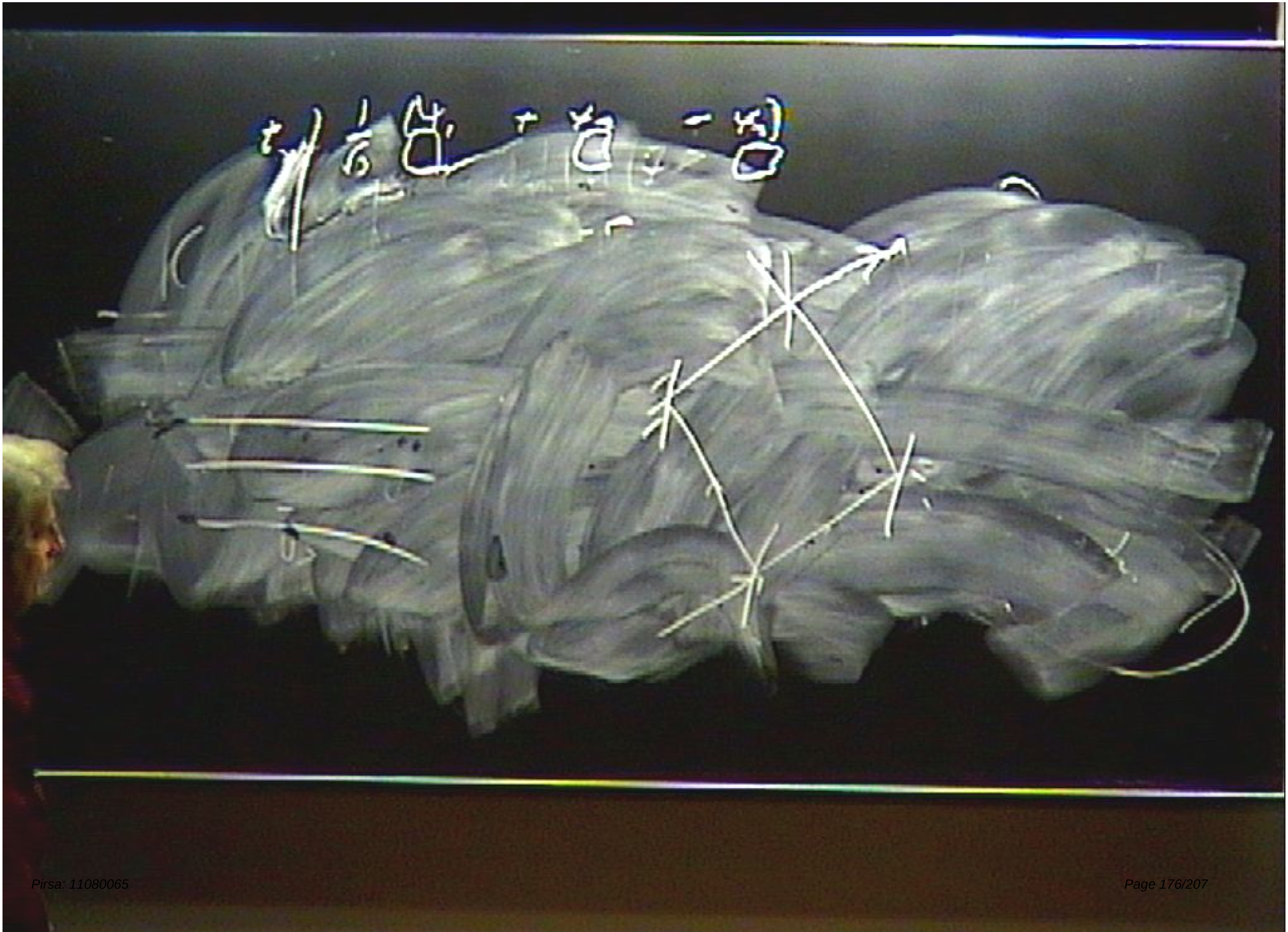
Â₁ |ε₁⟩ = α₁ |ε₁⟩
Â₂ |ε₂⟩ = α₂ |ε₂⟩

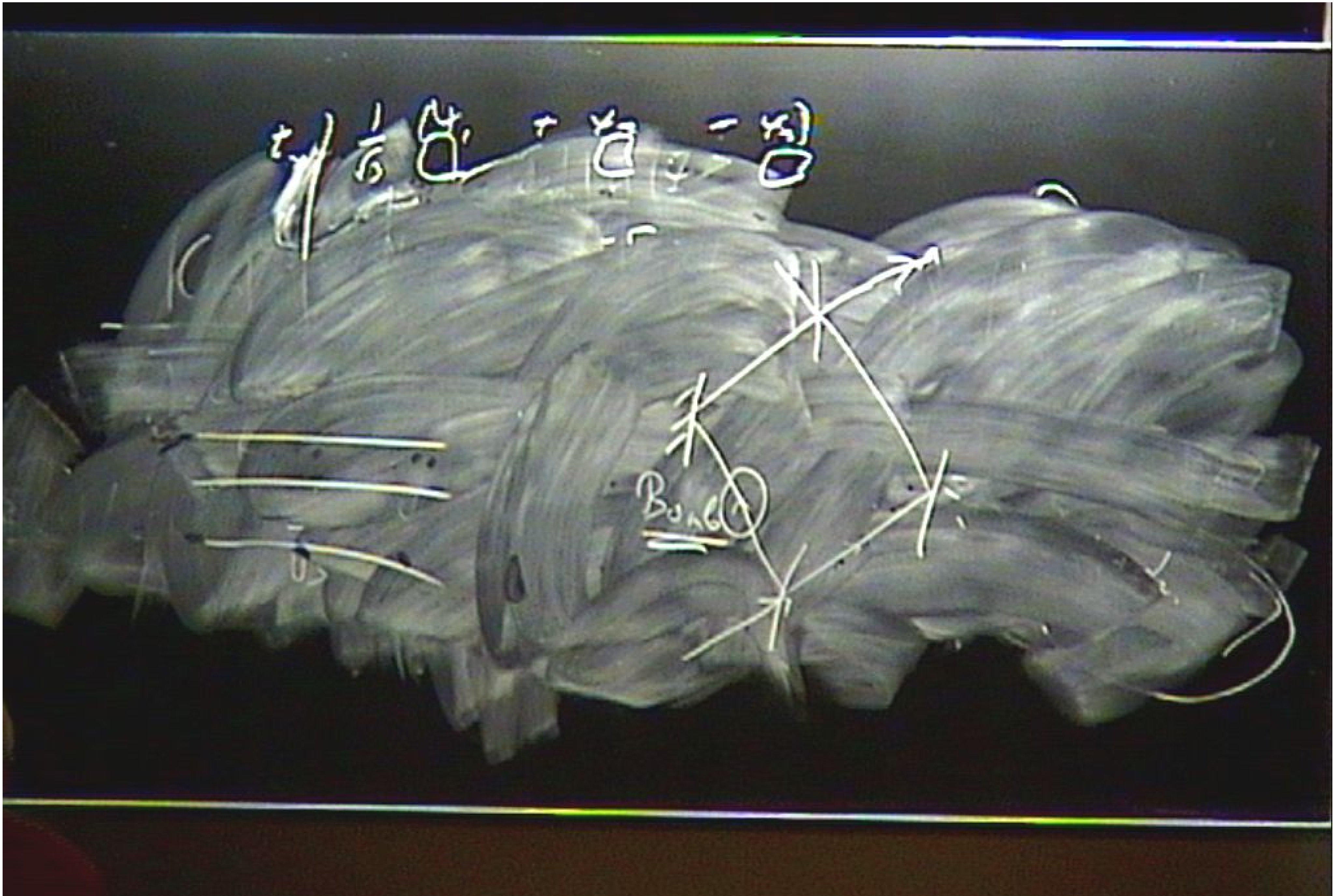


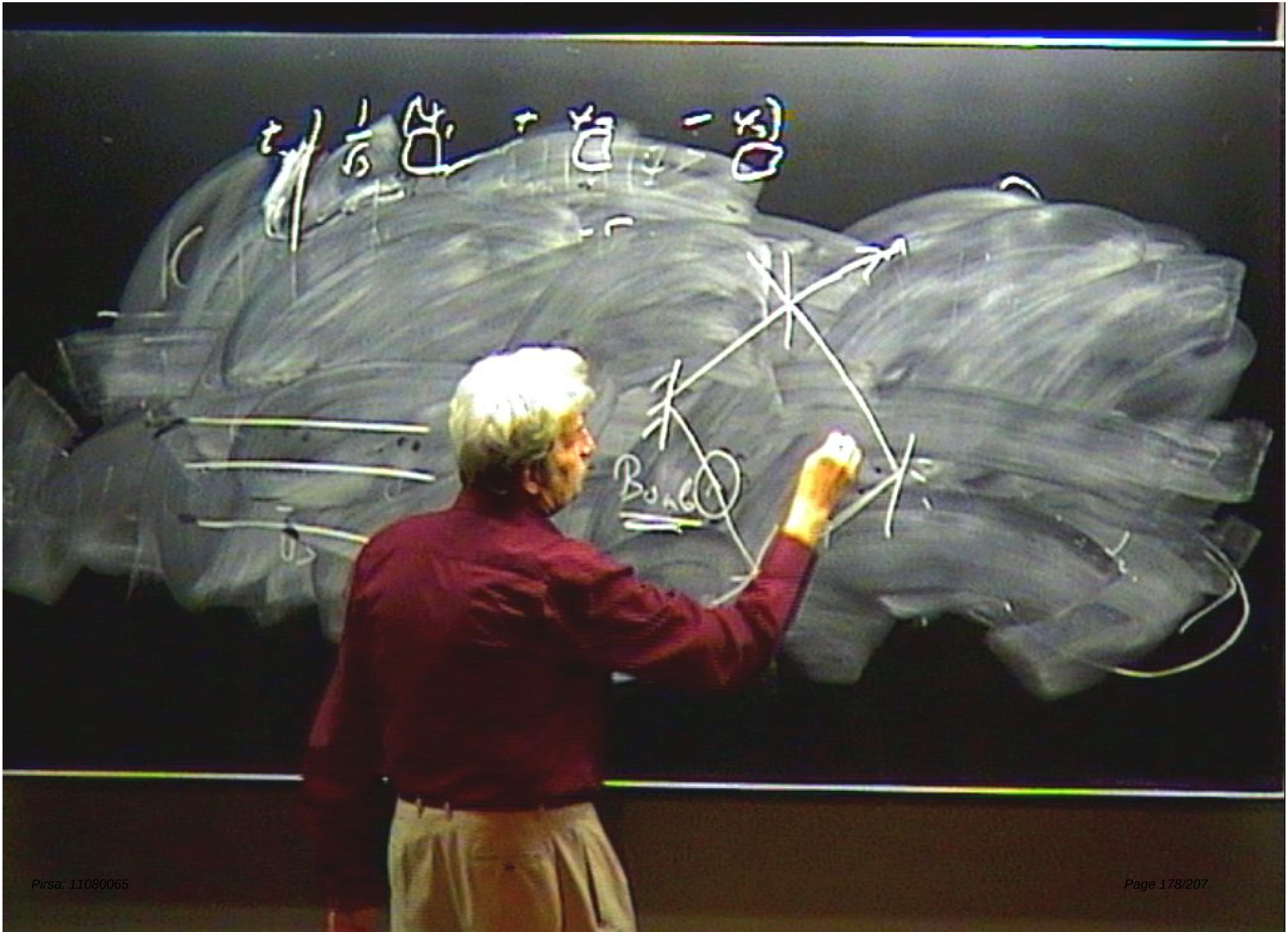


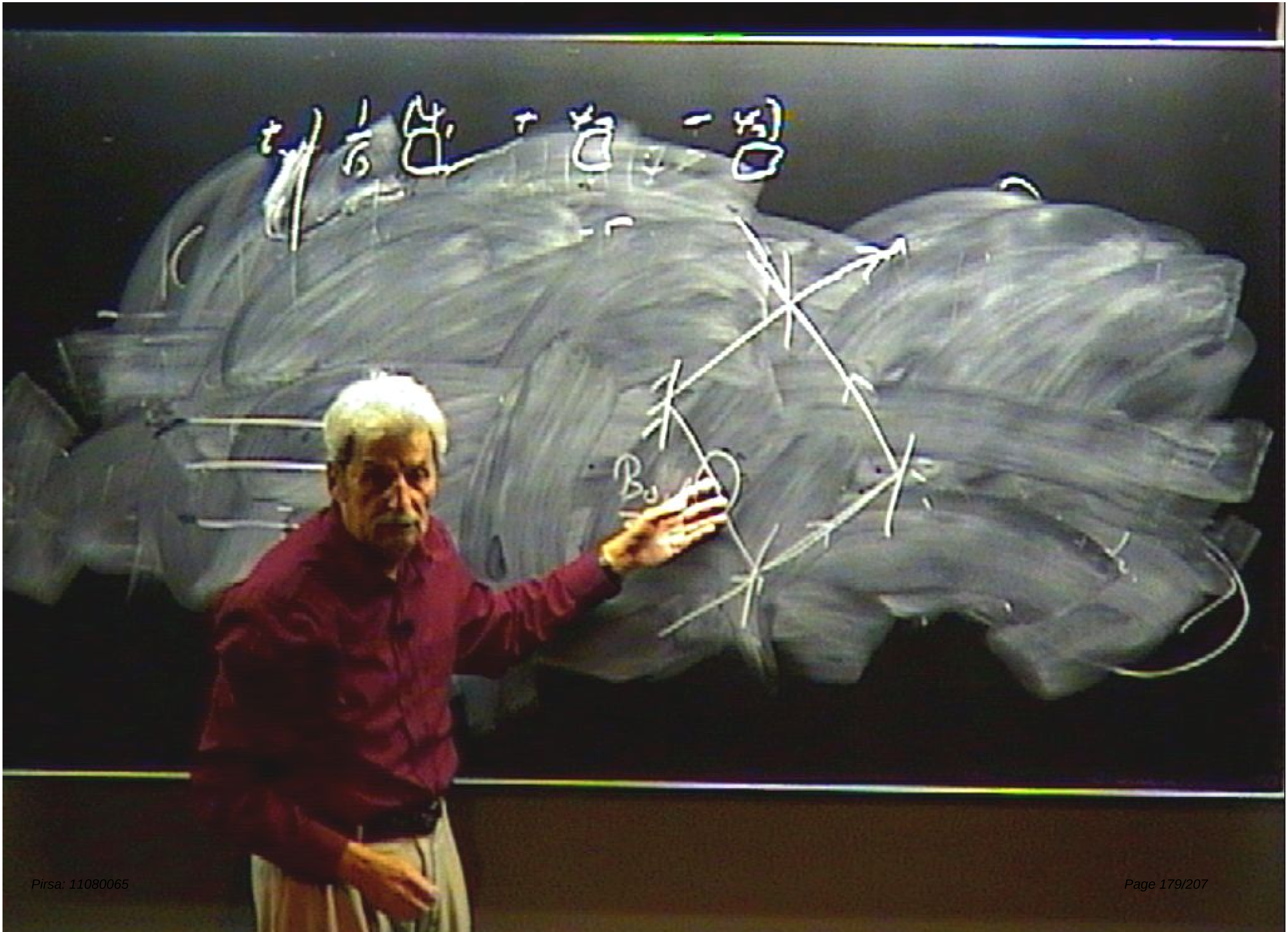


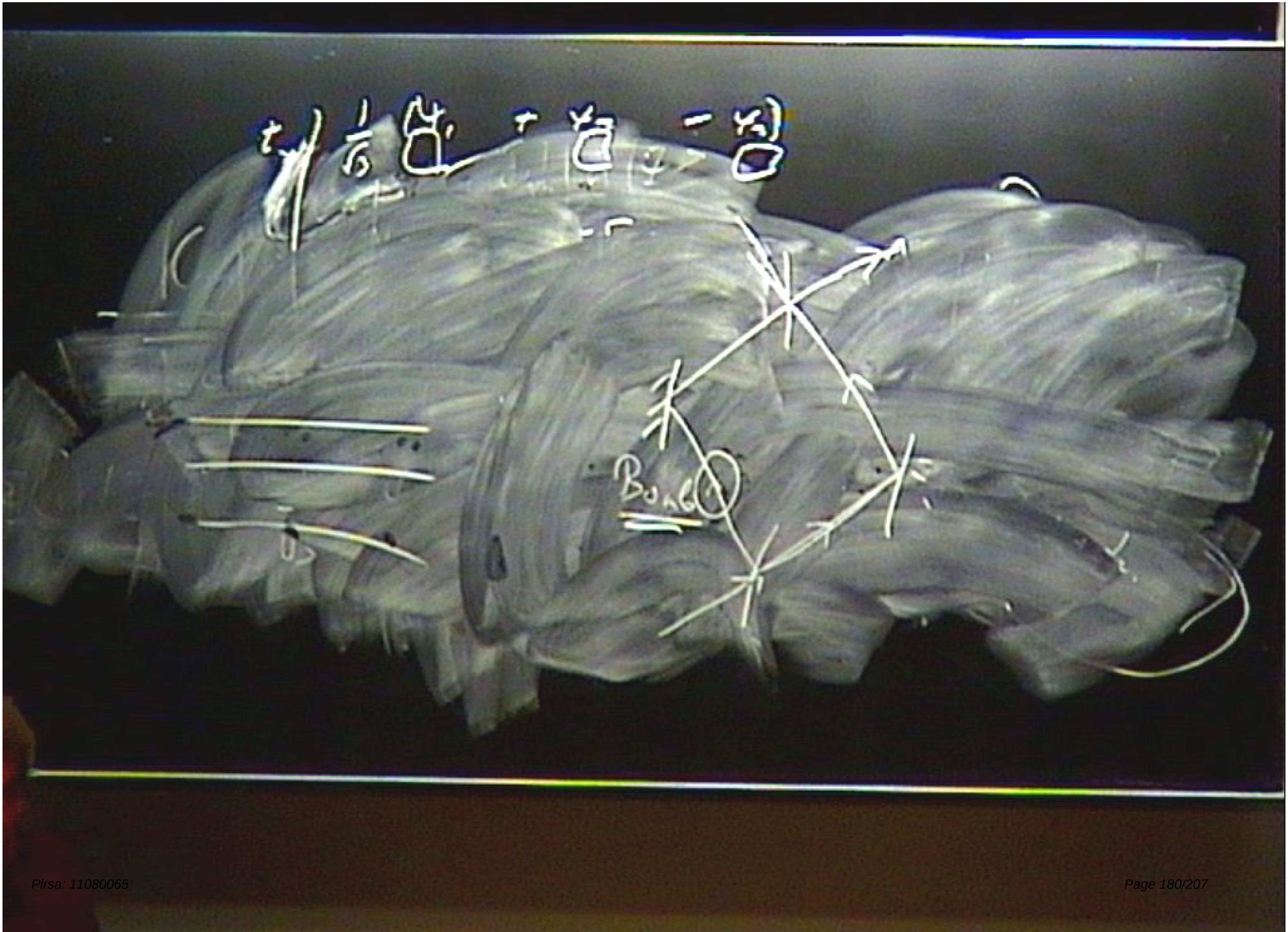


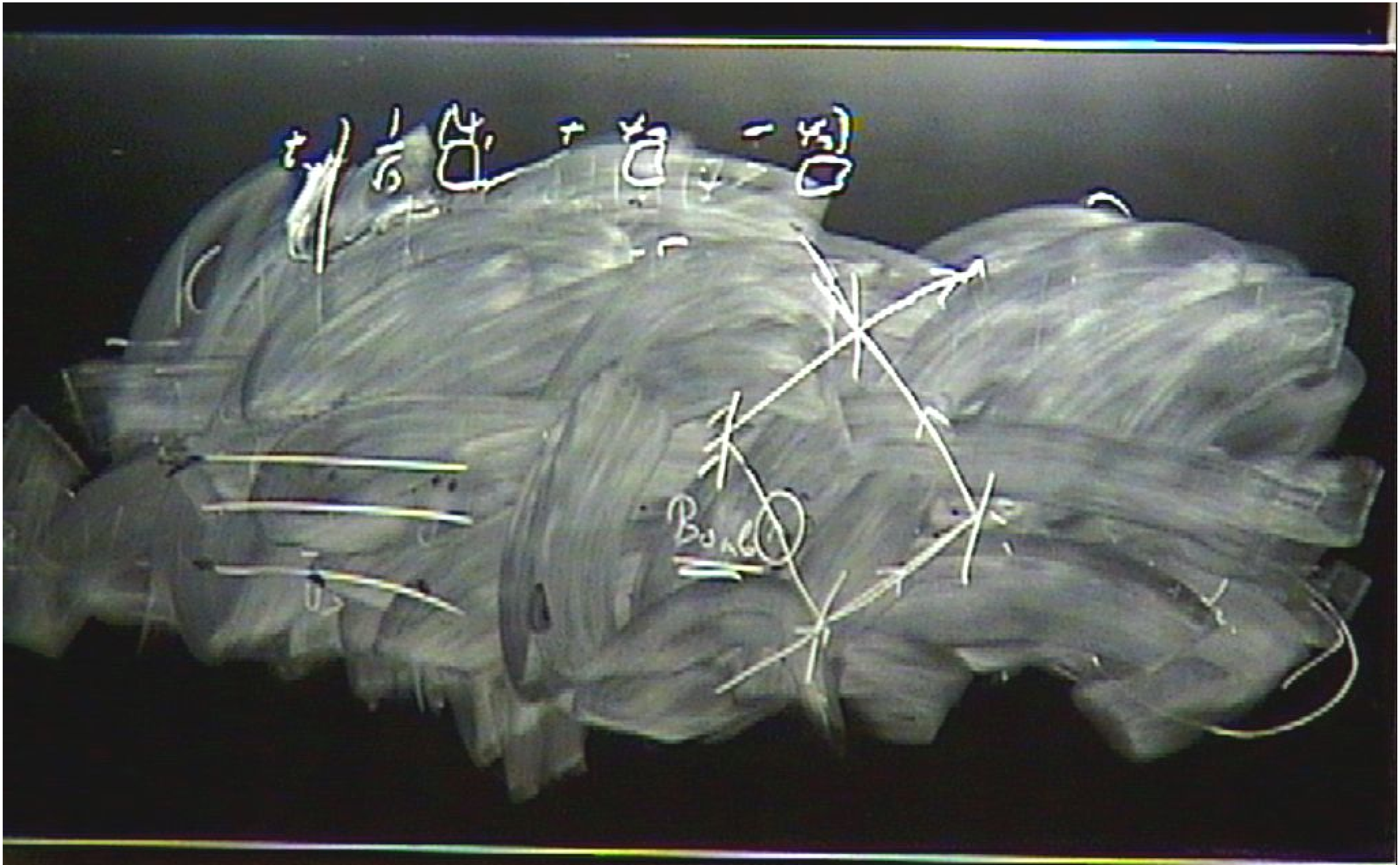


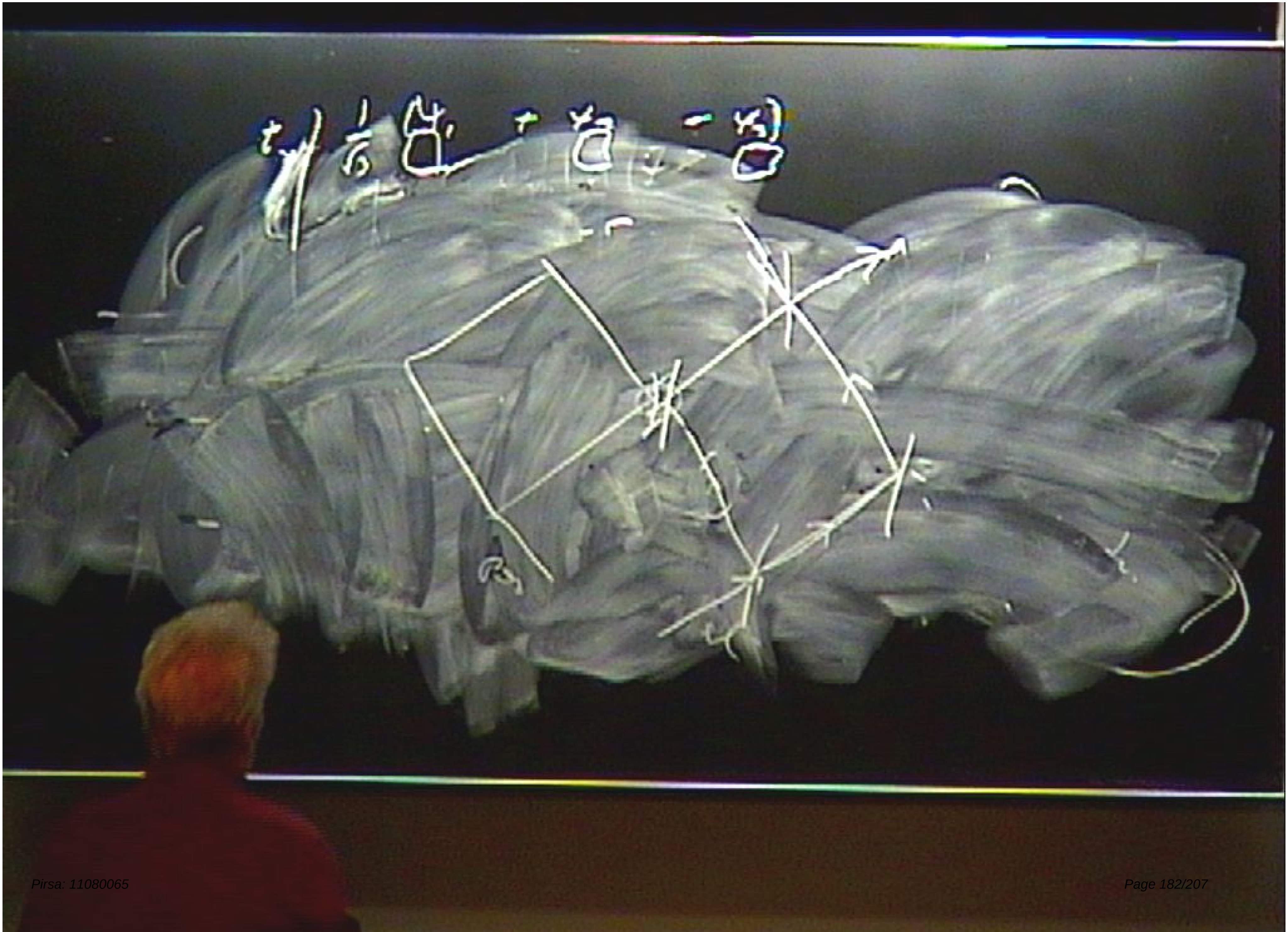


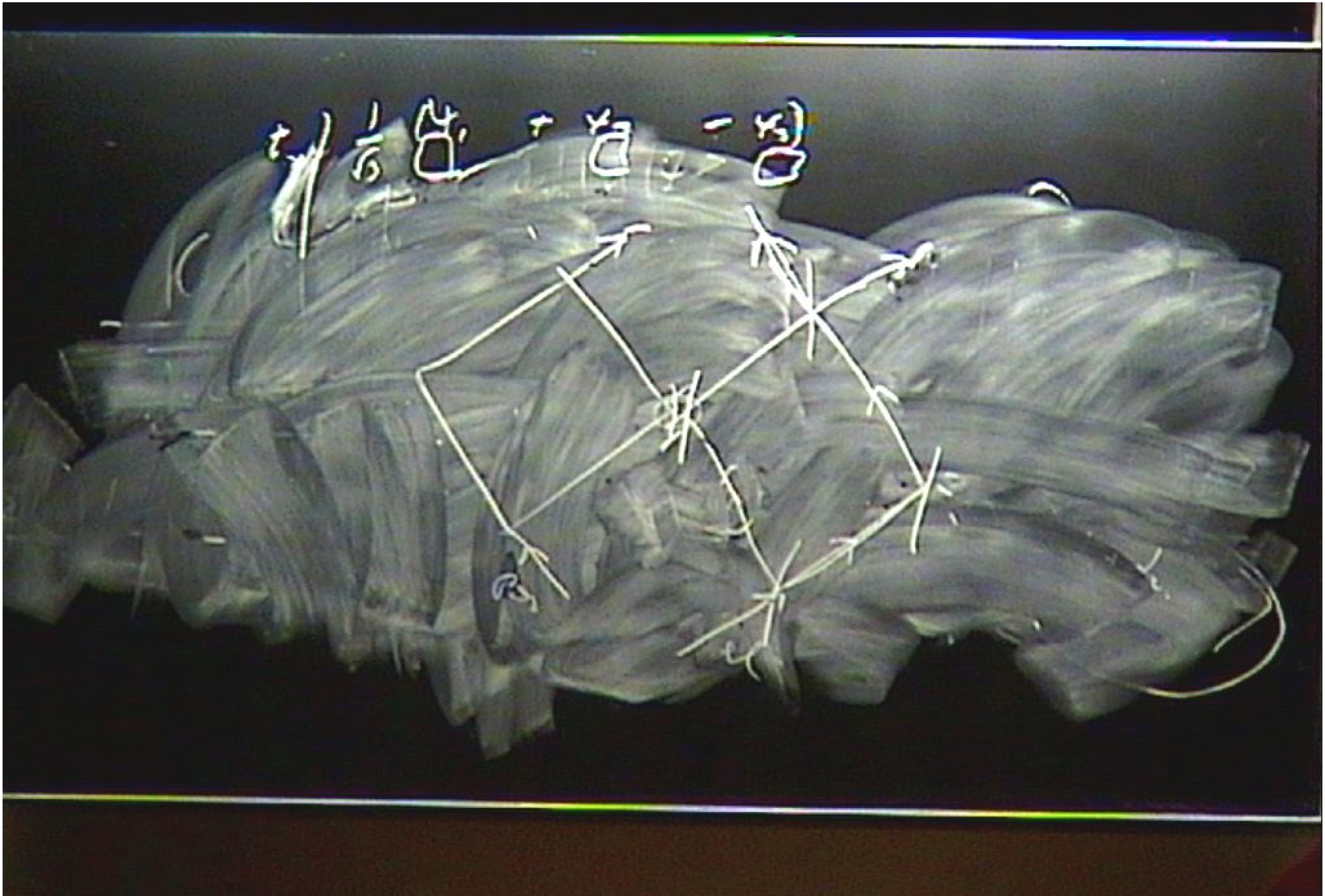


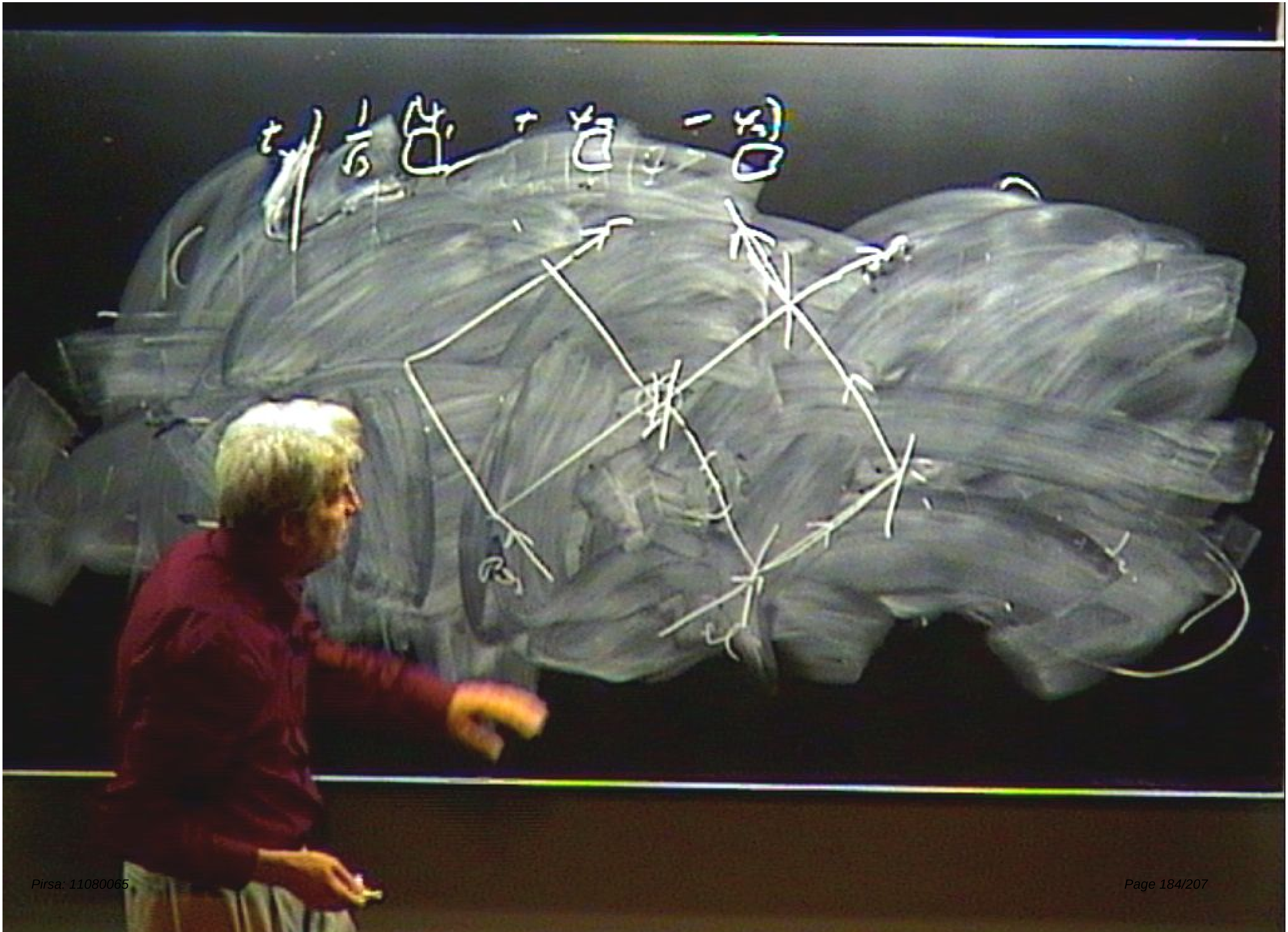


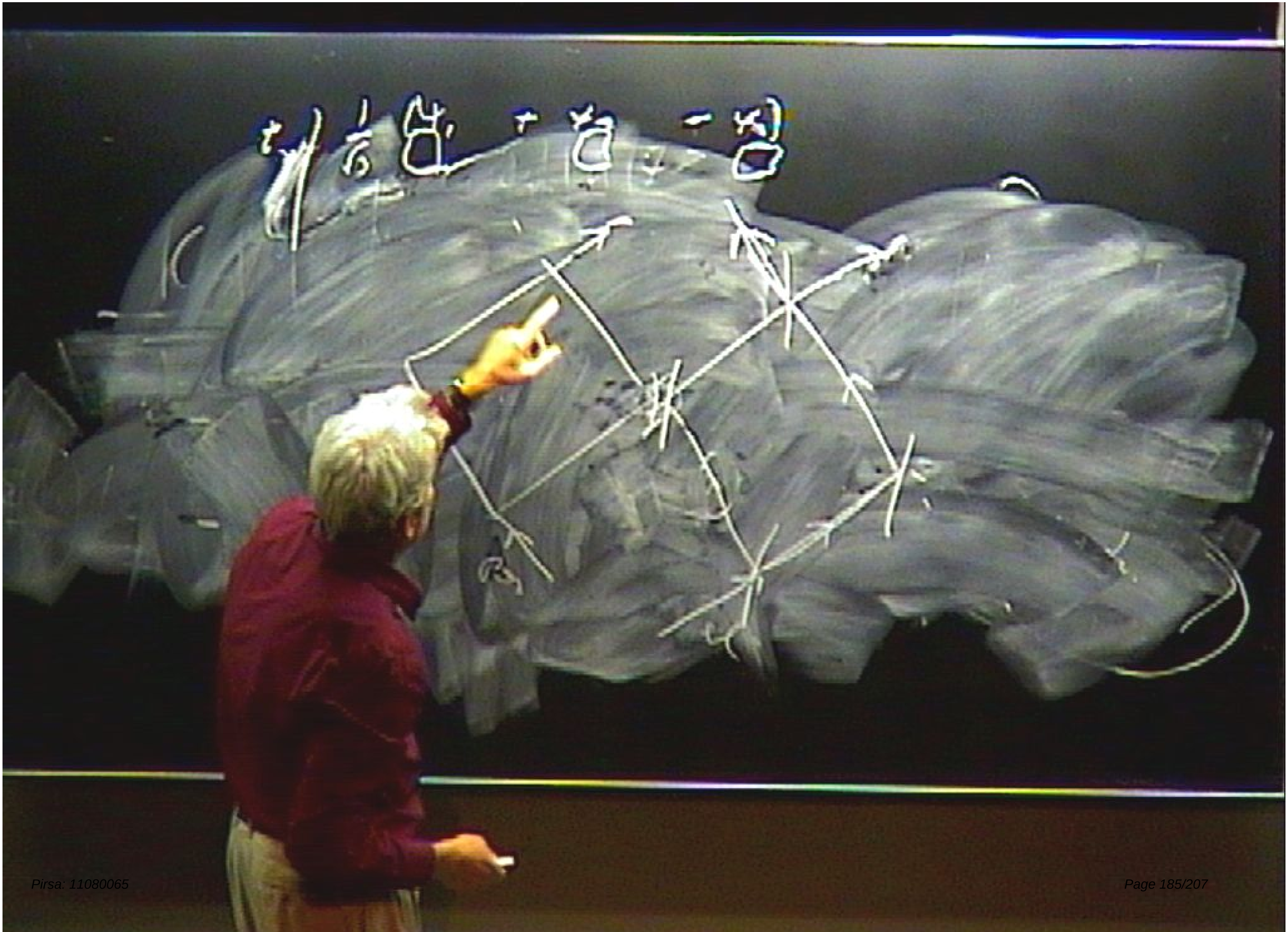


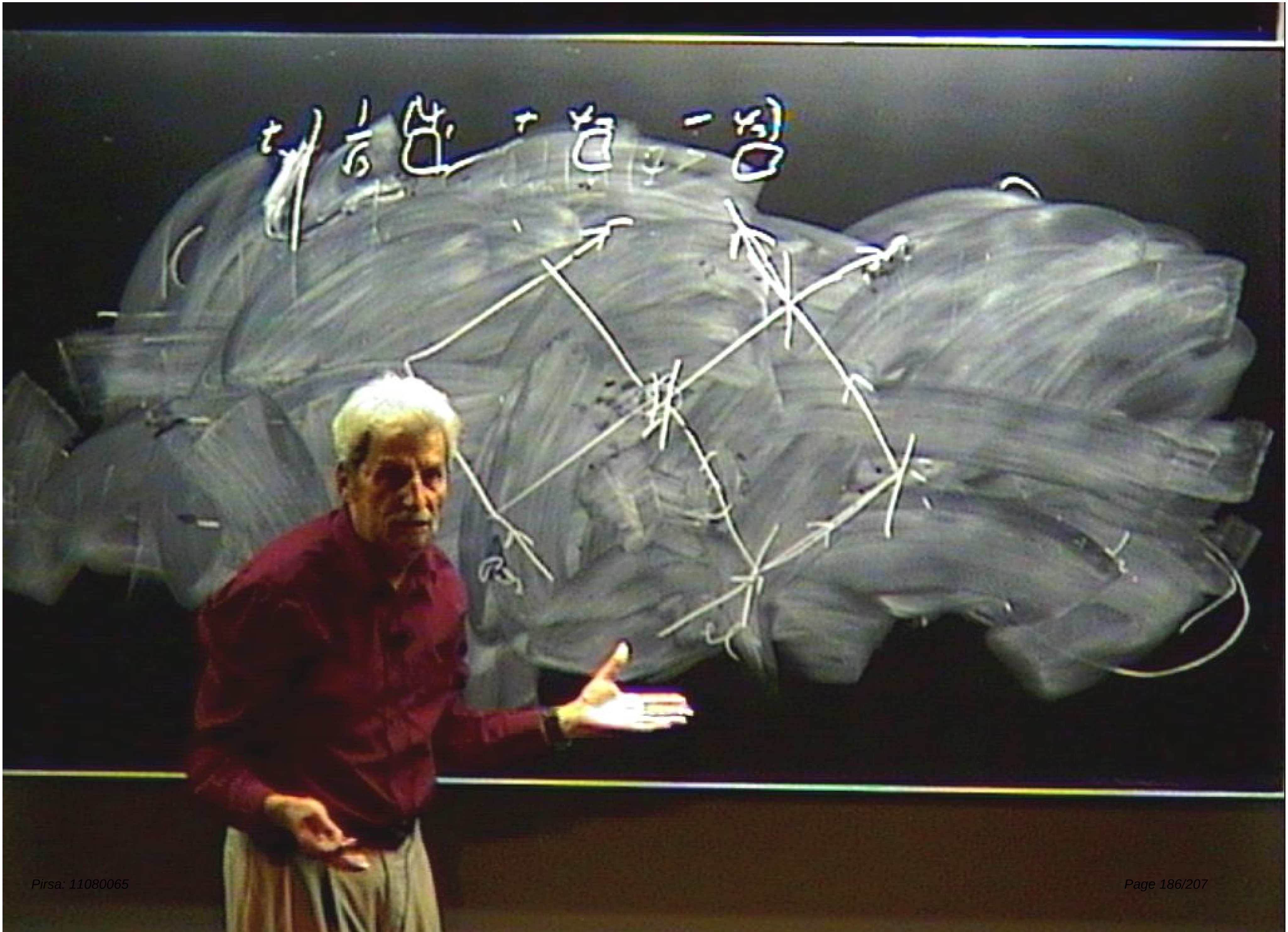


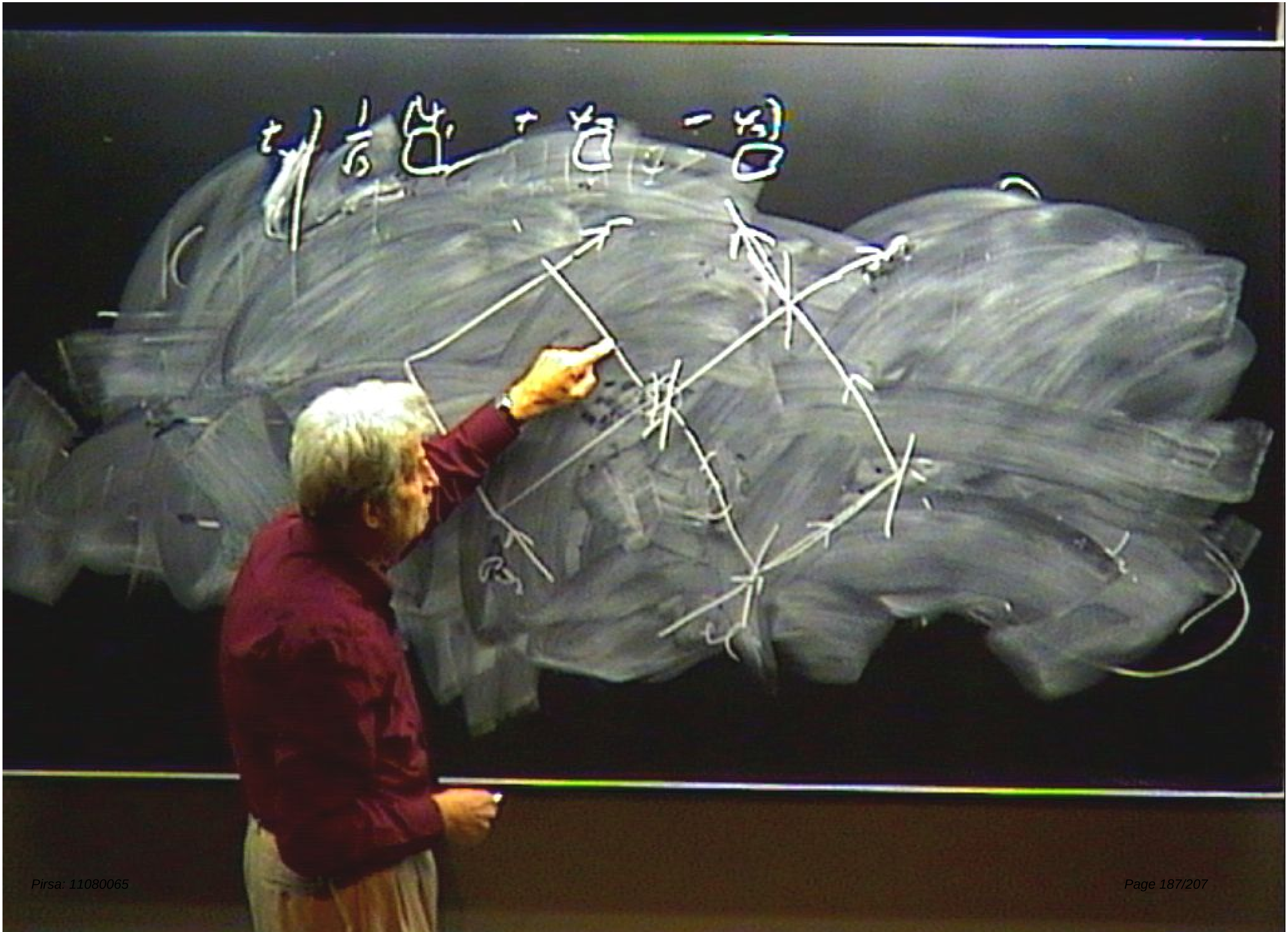


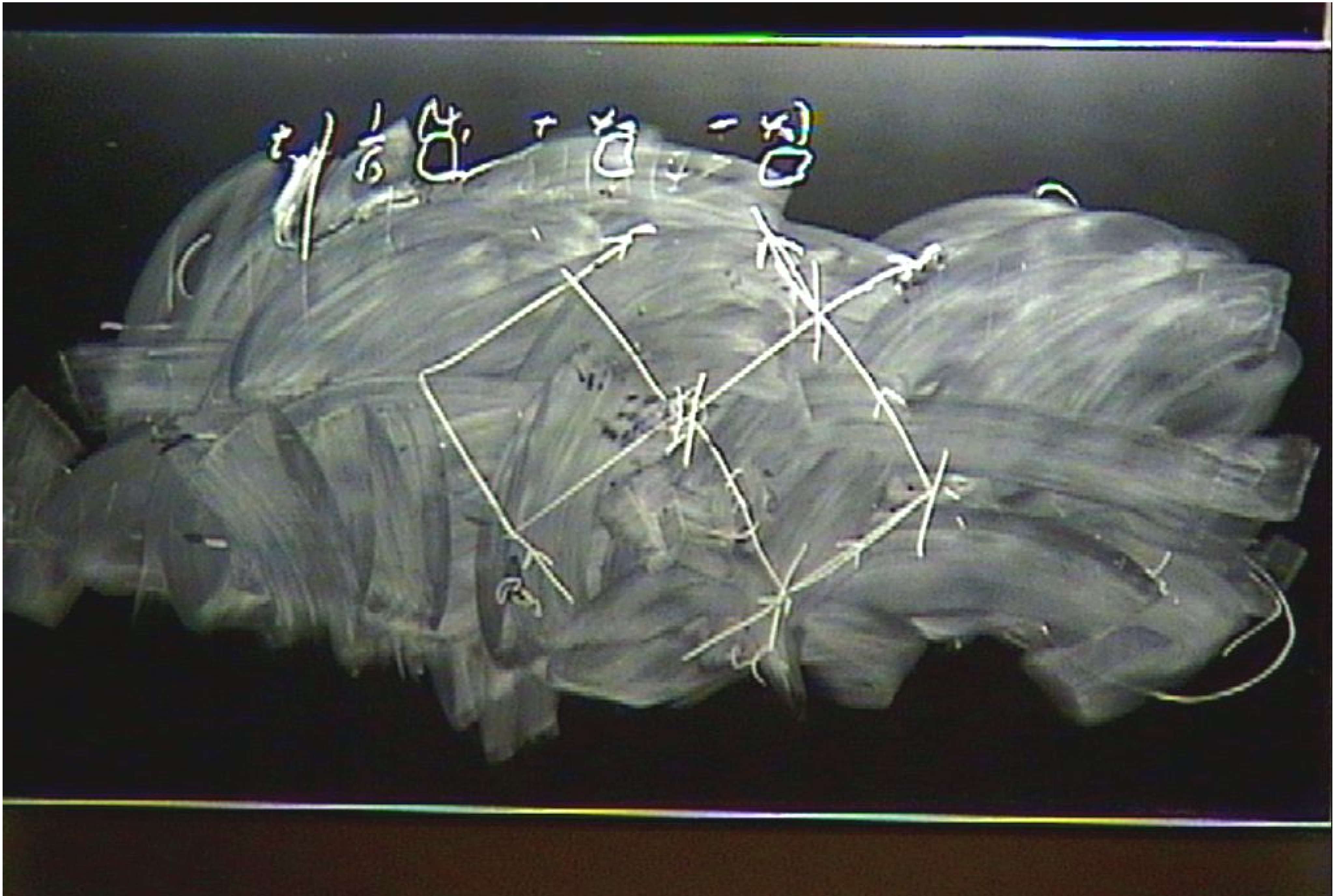


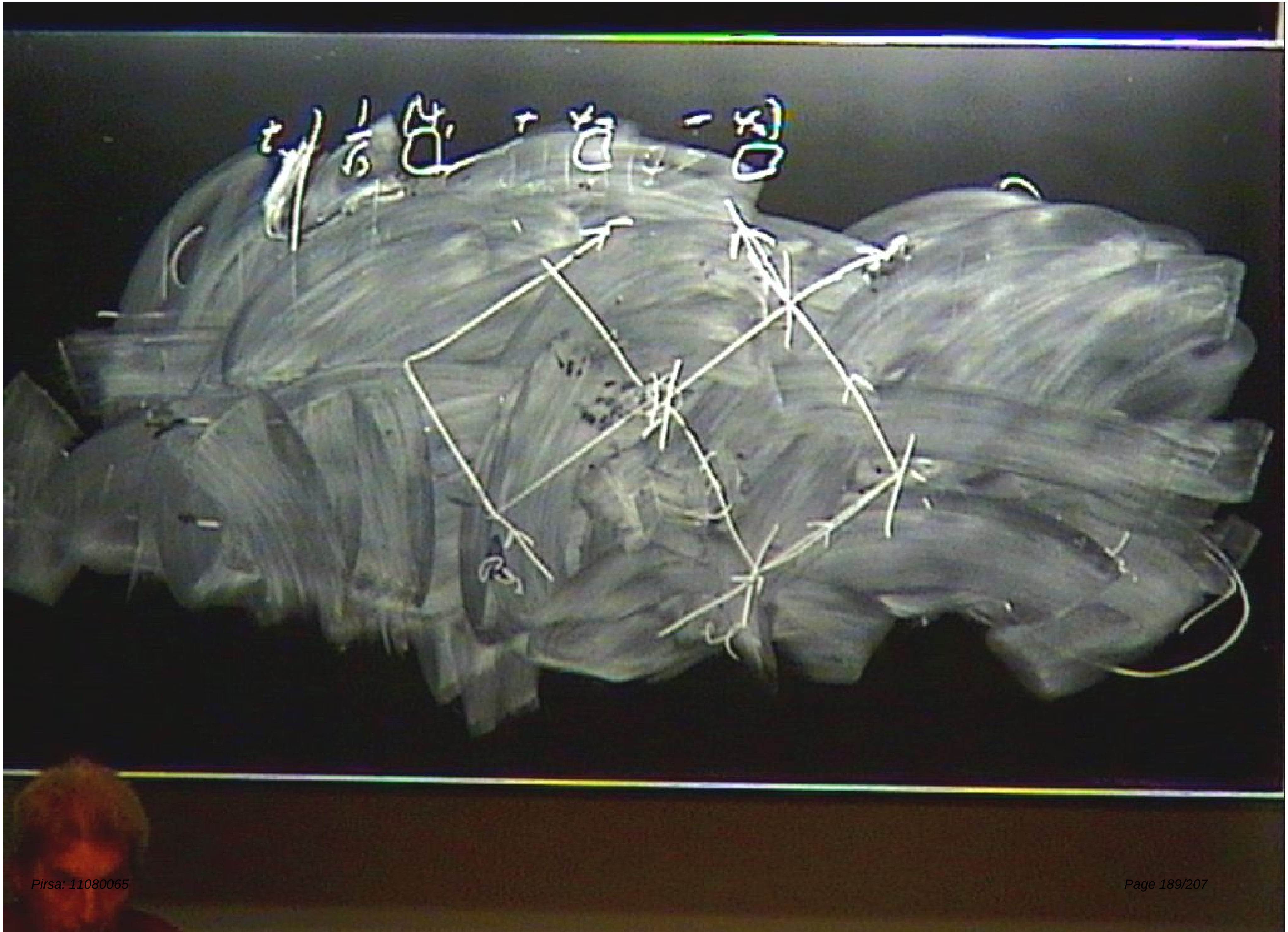


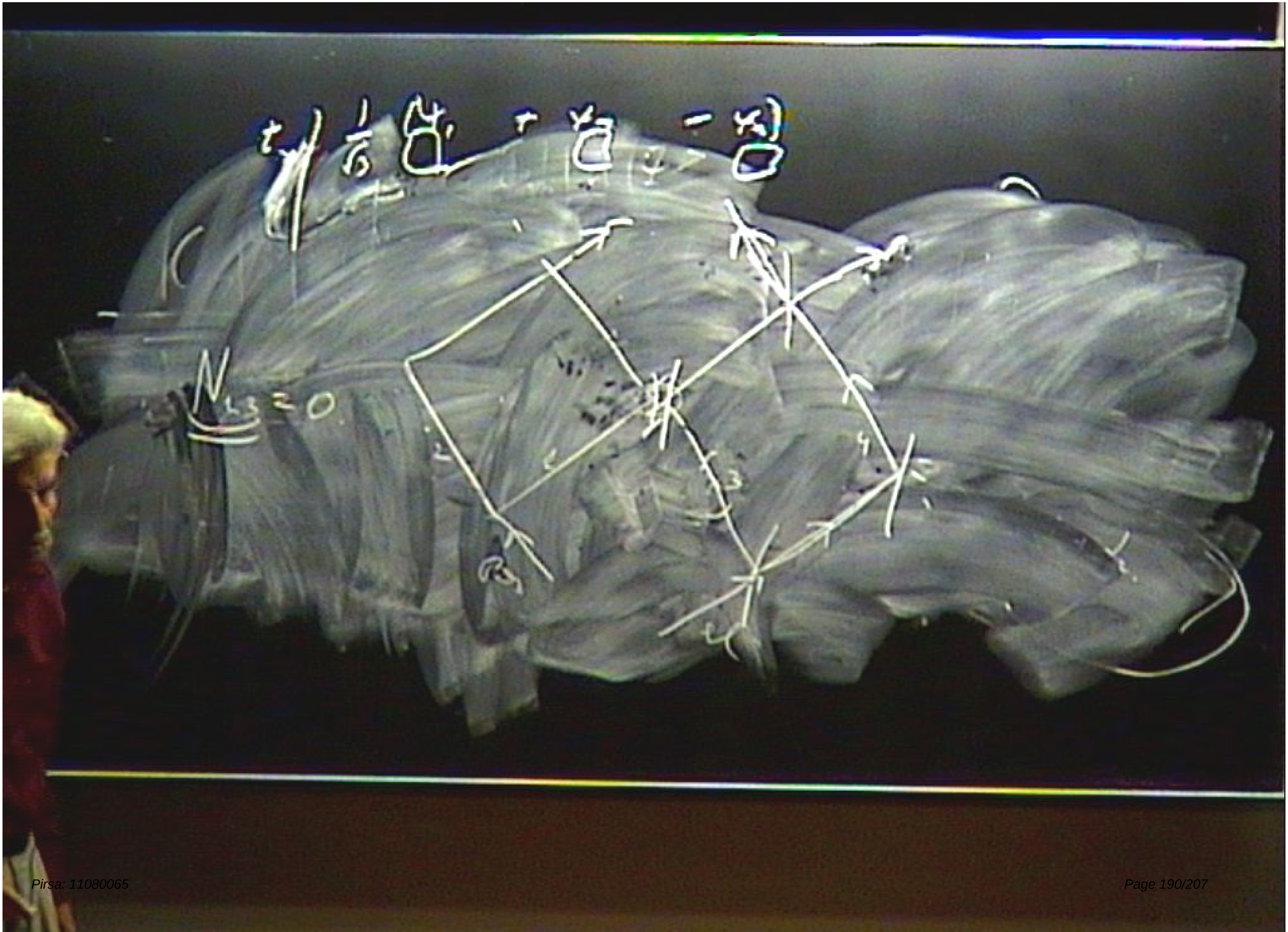


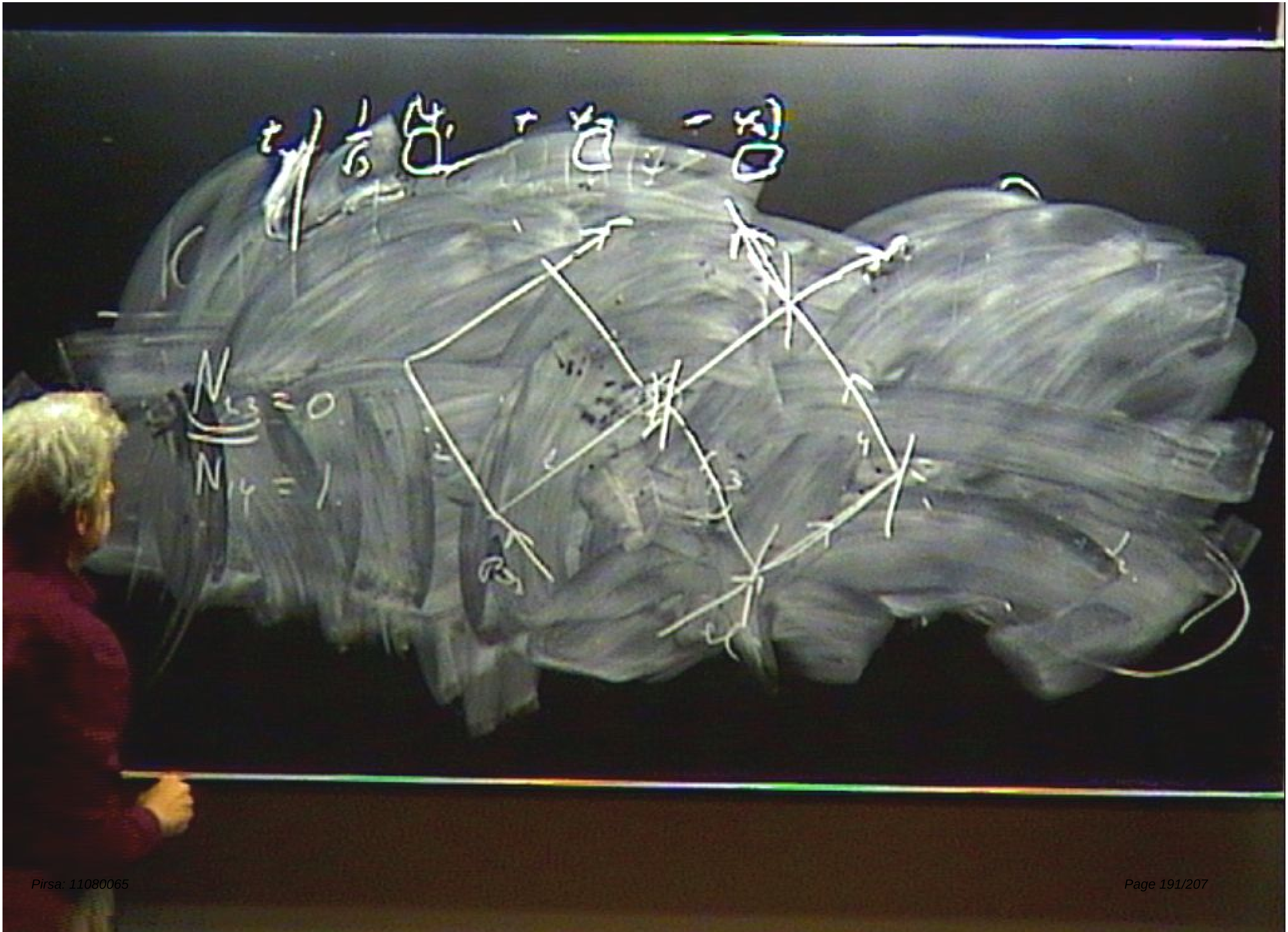








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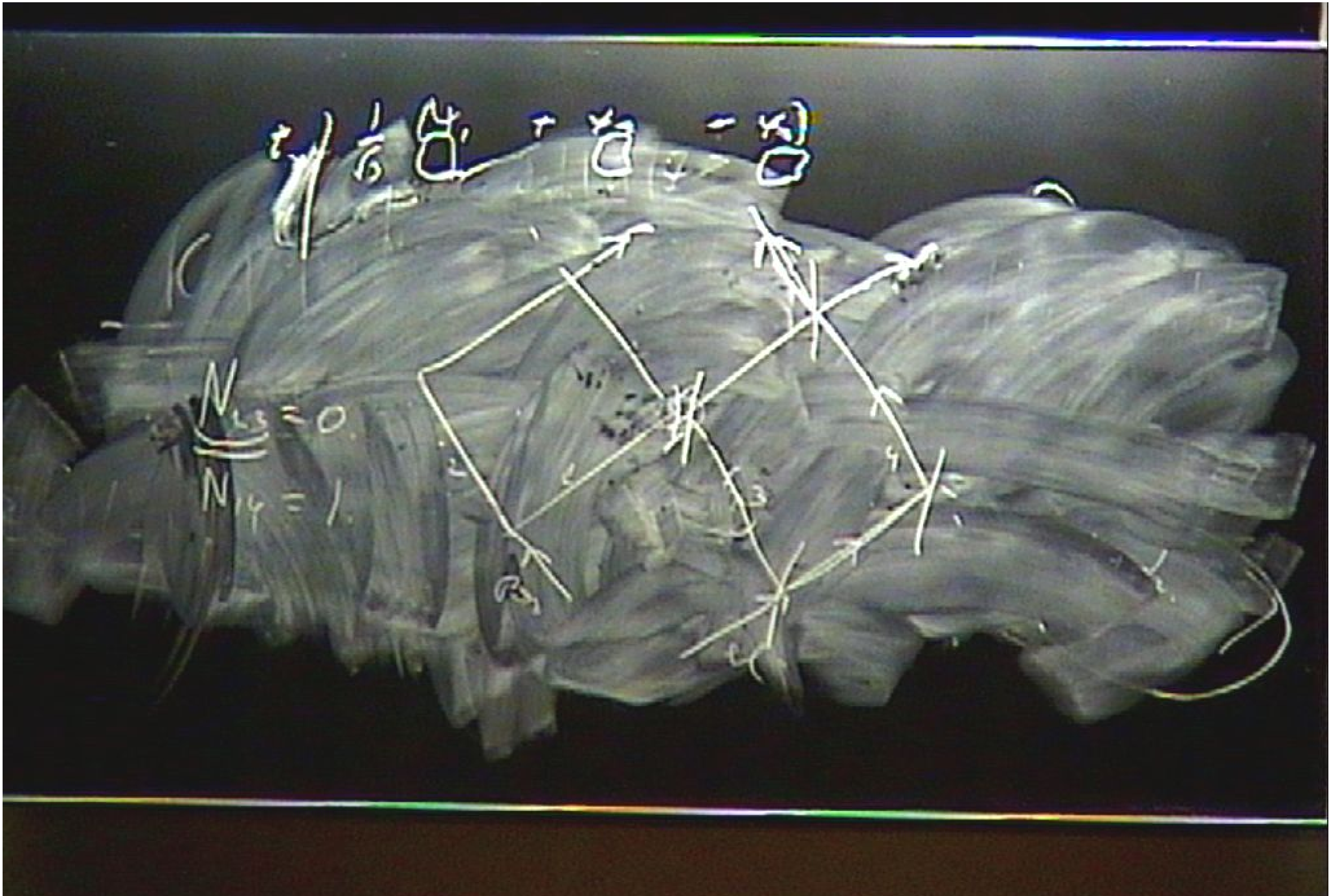
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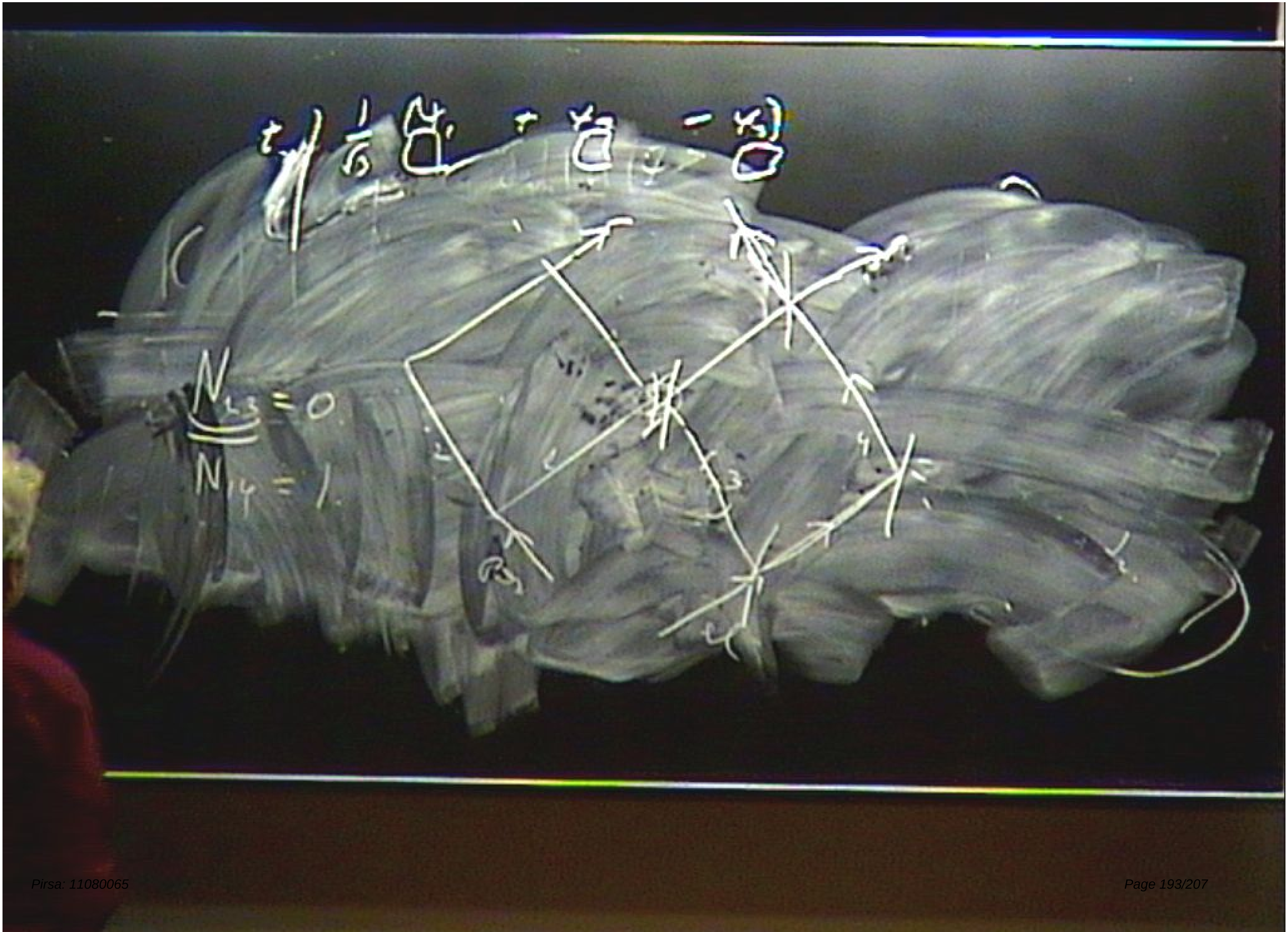
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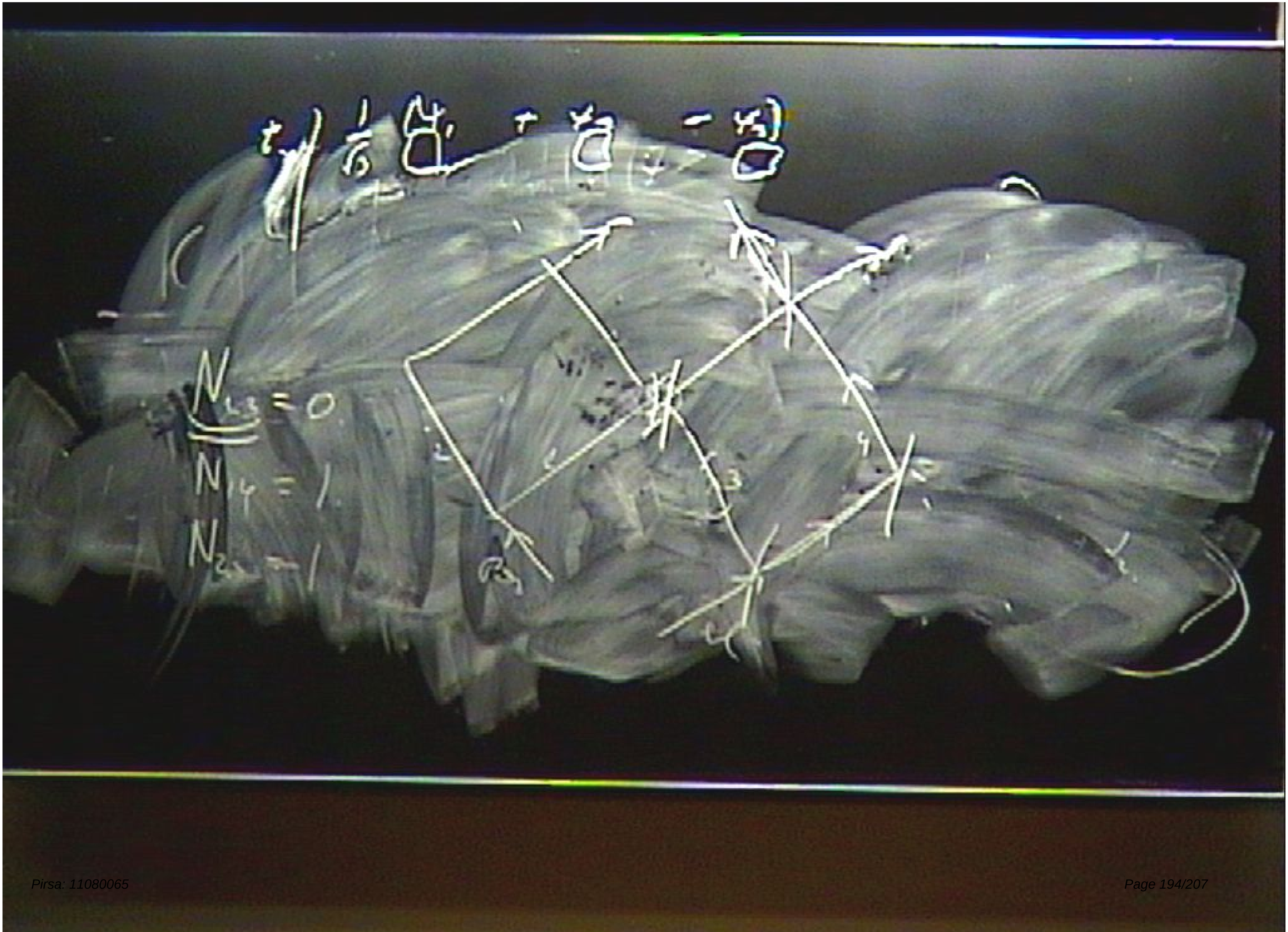
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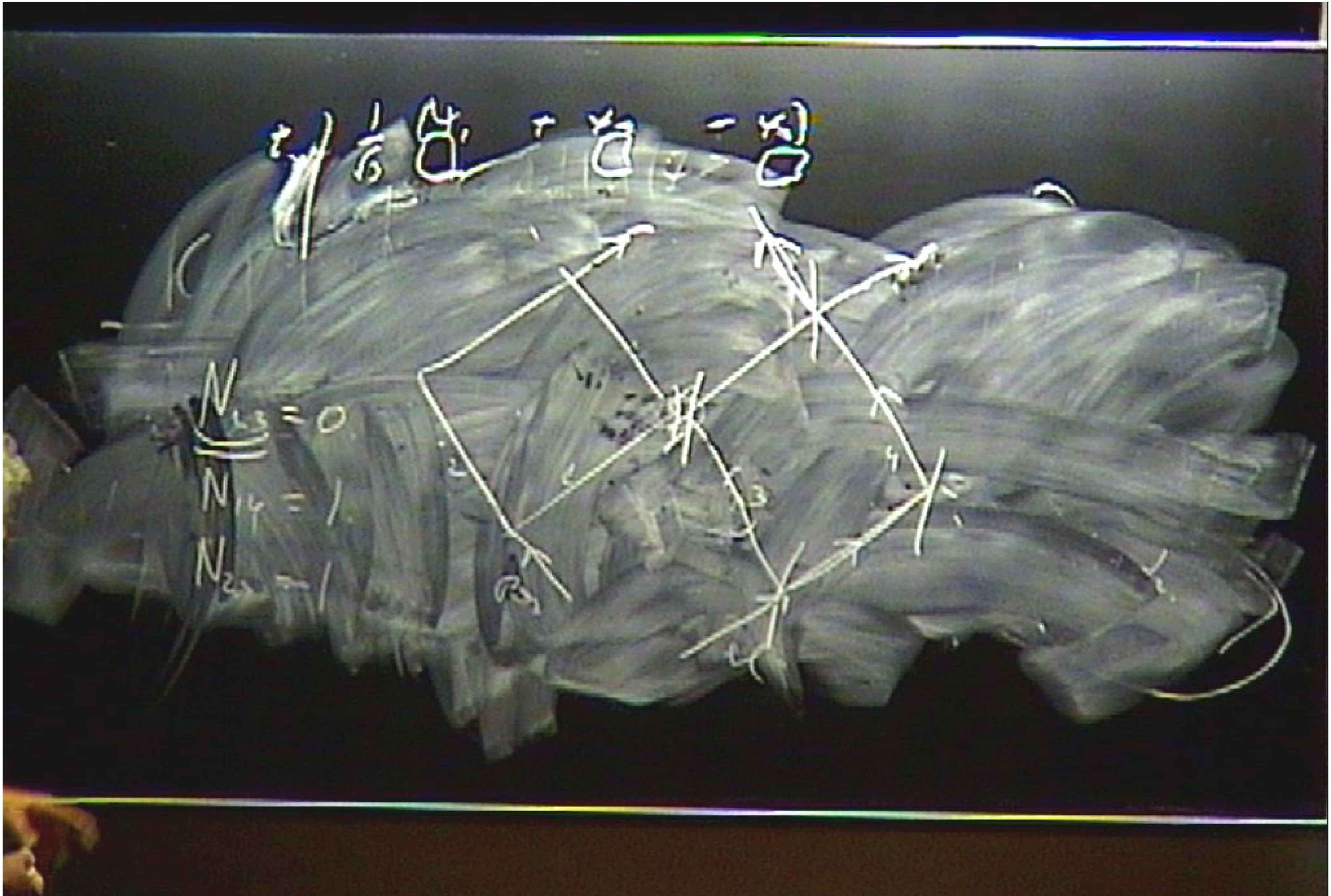
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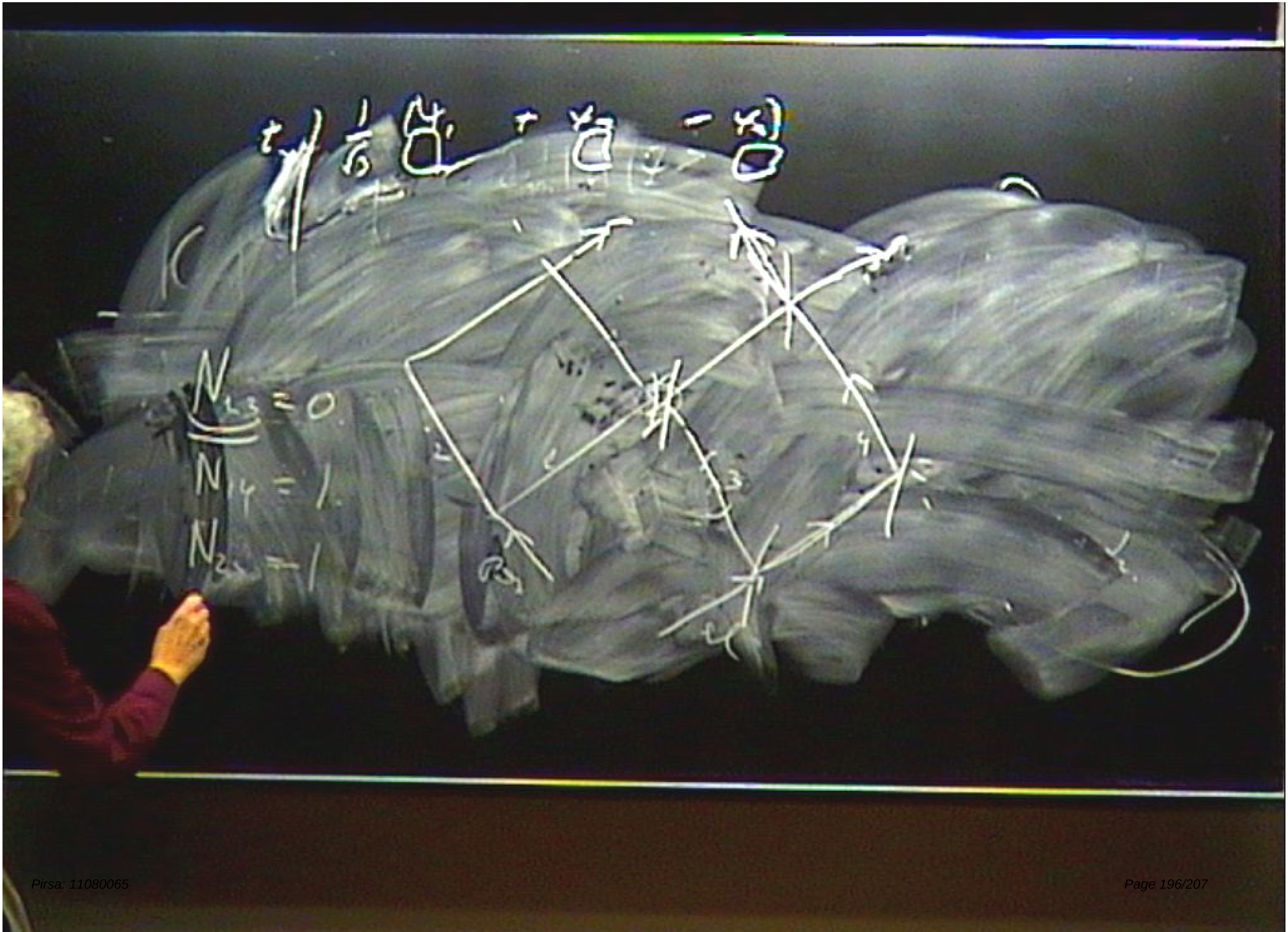
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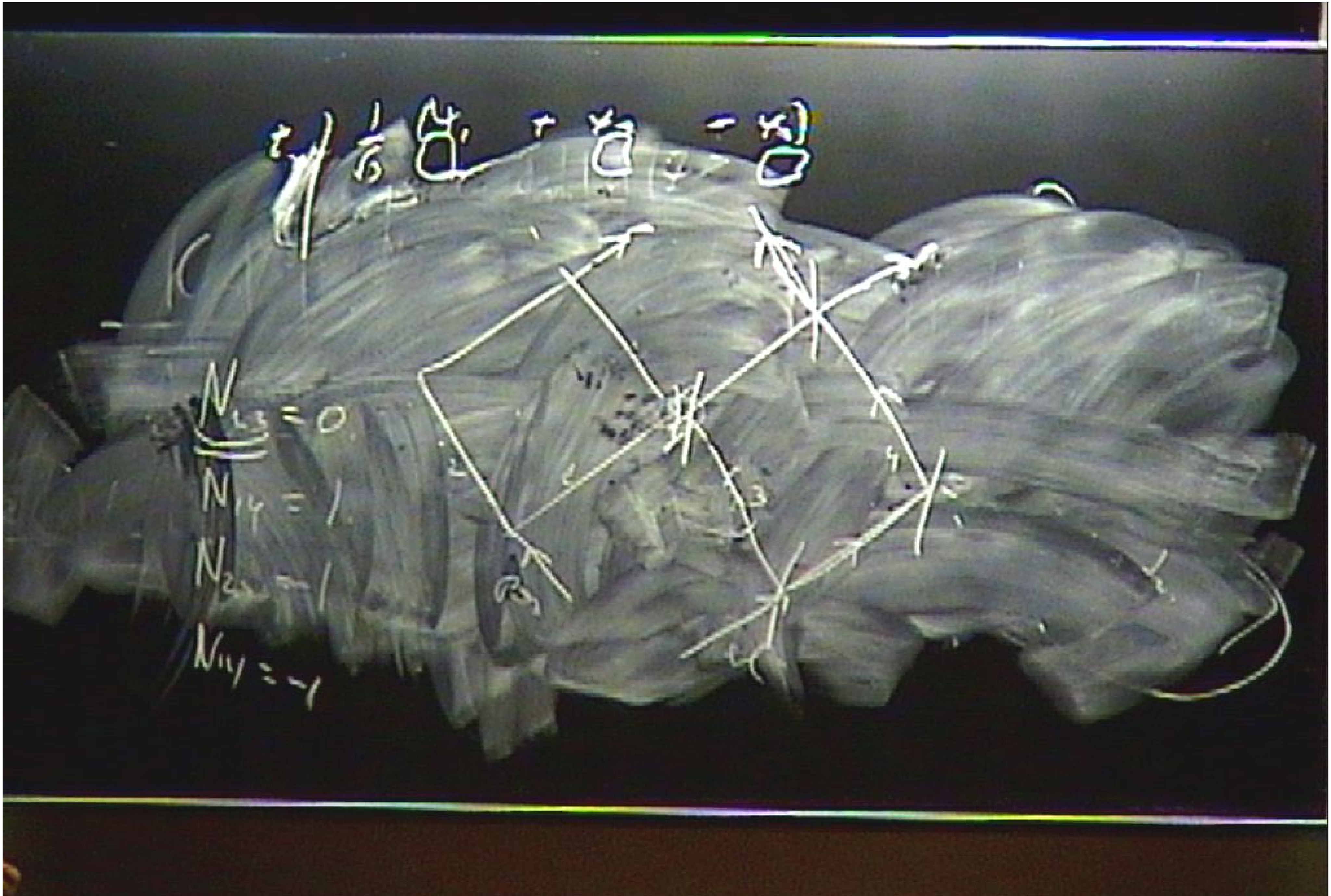
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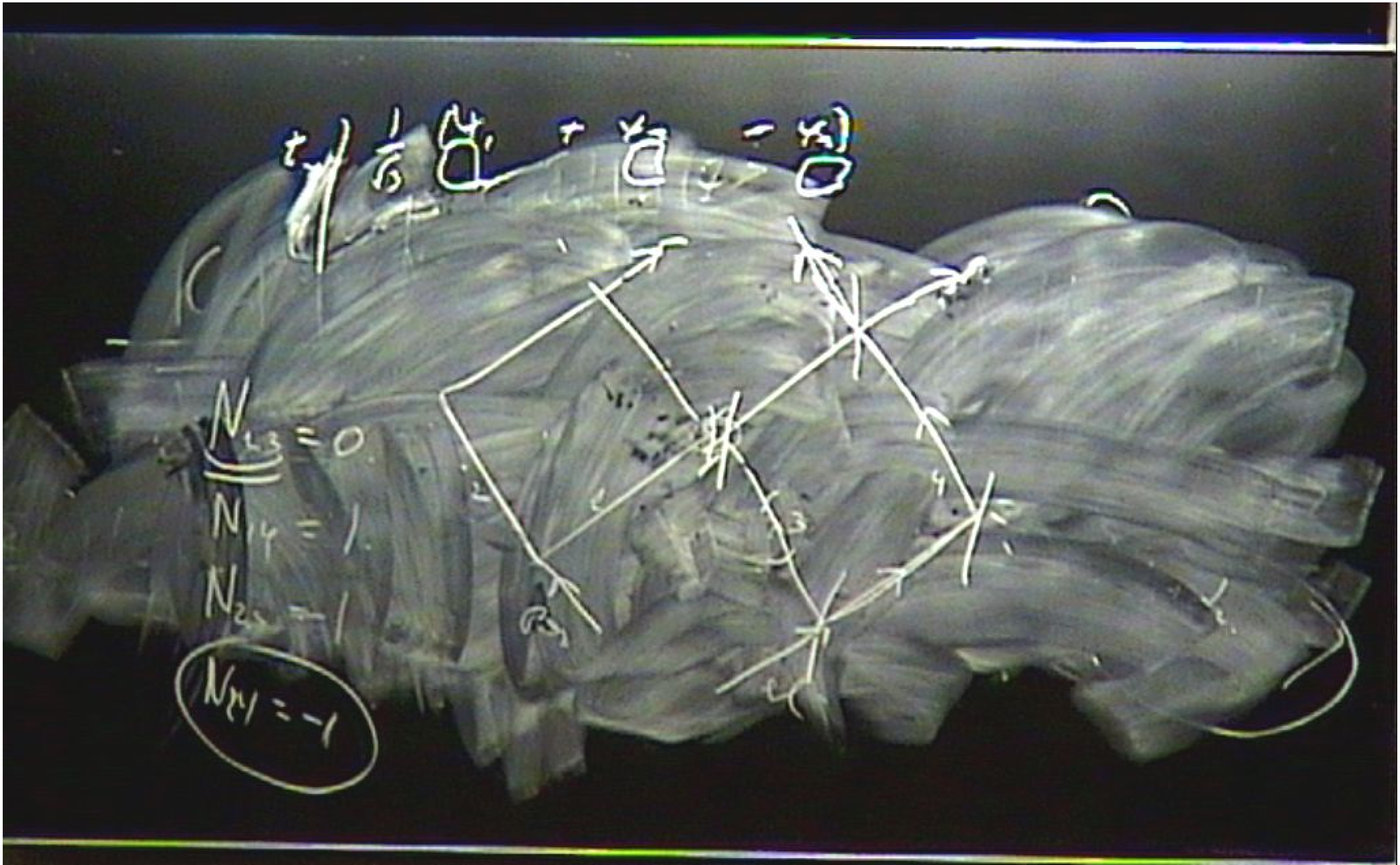
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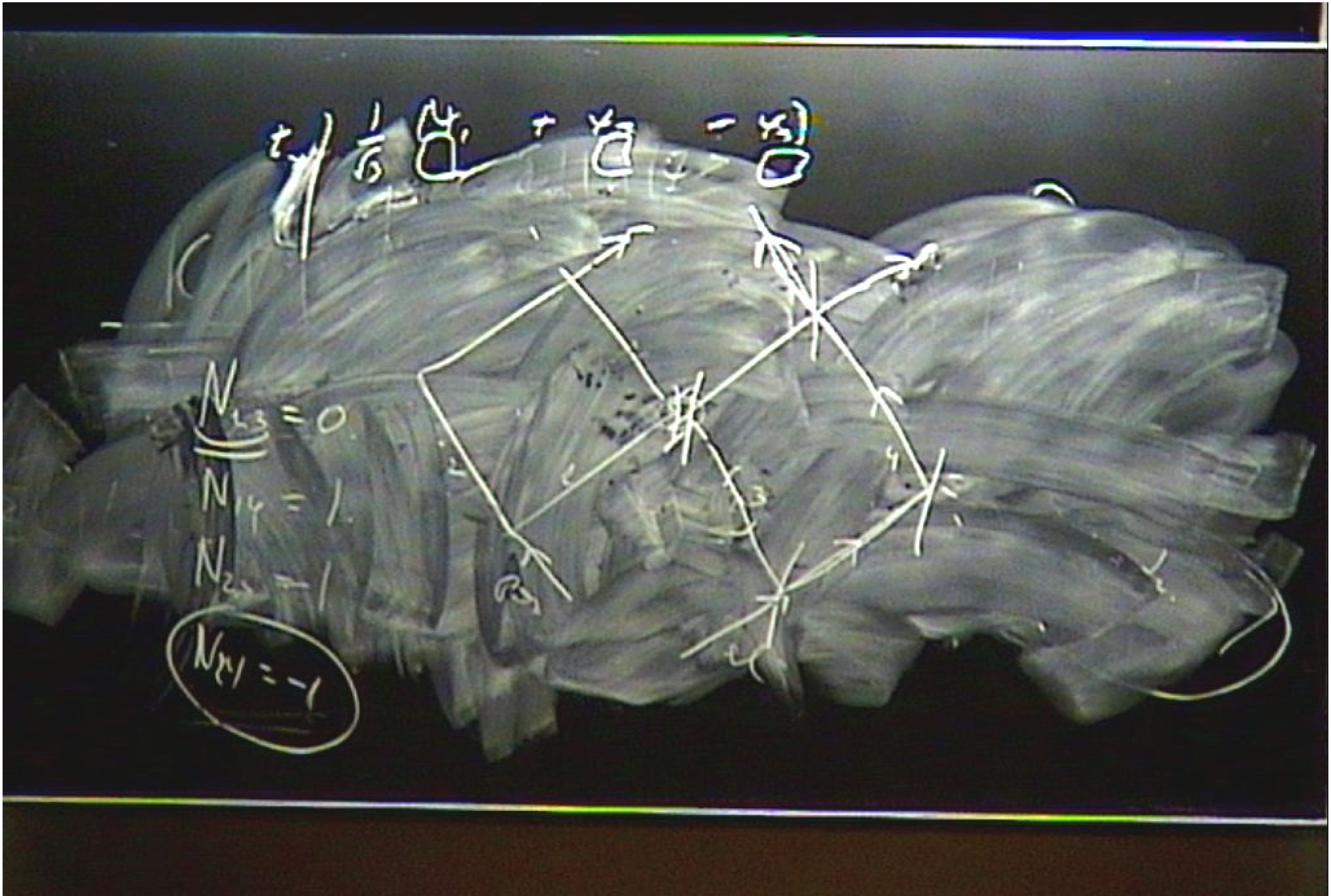

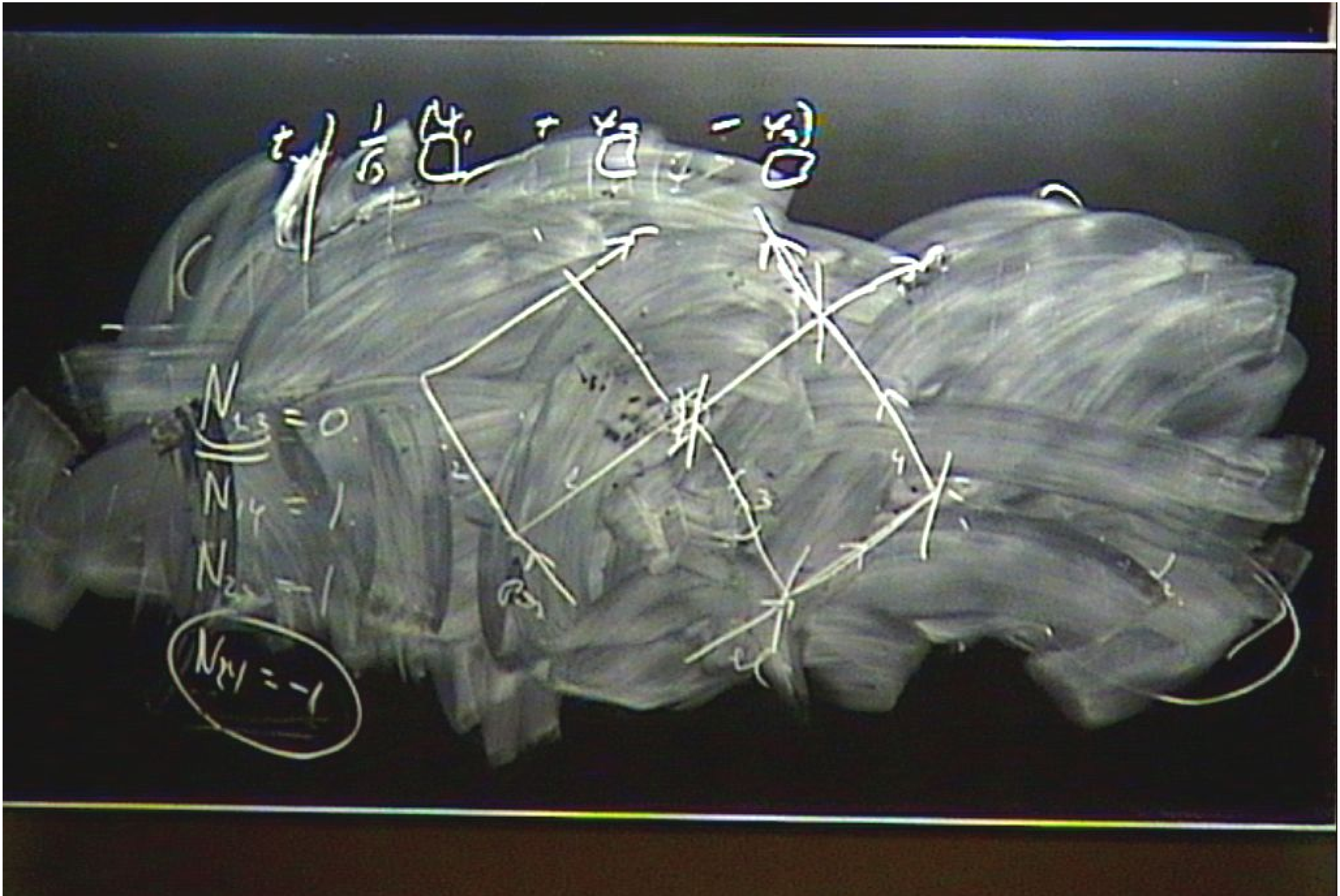
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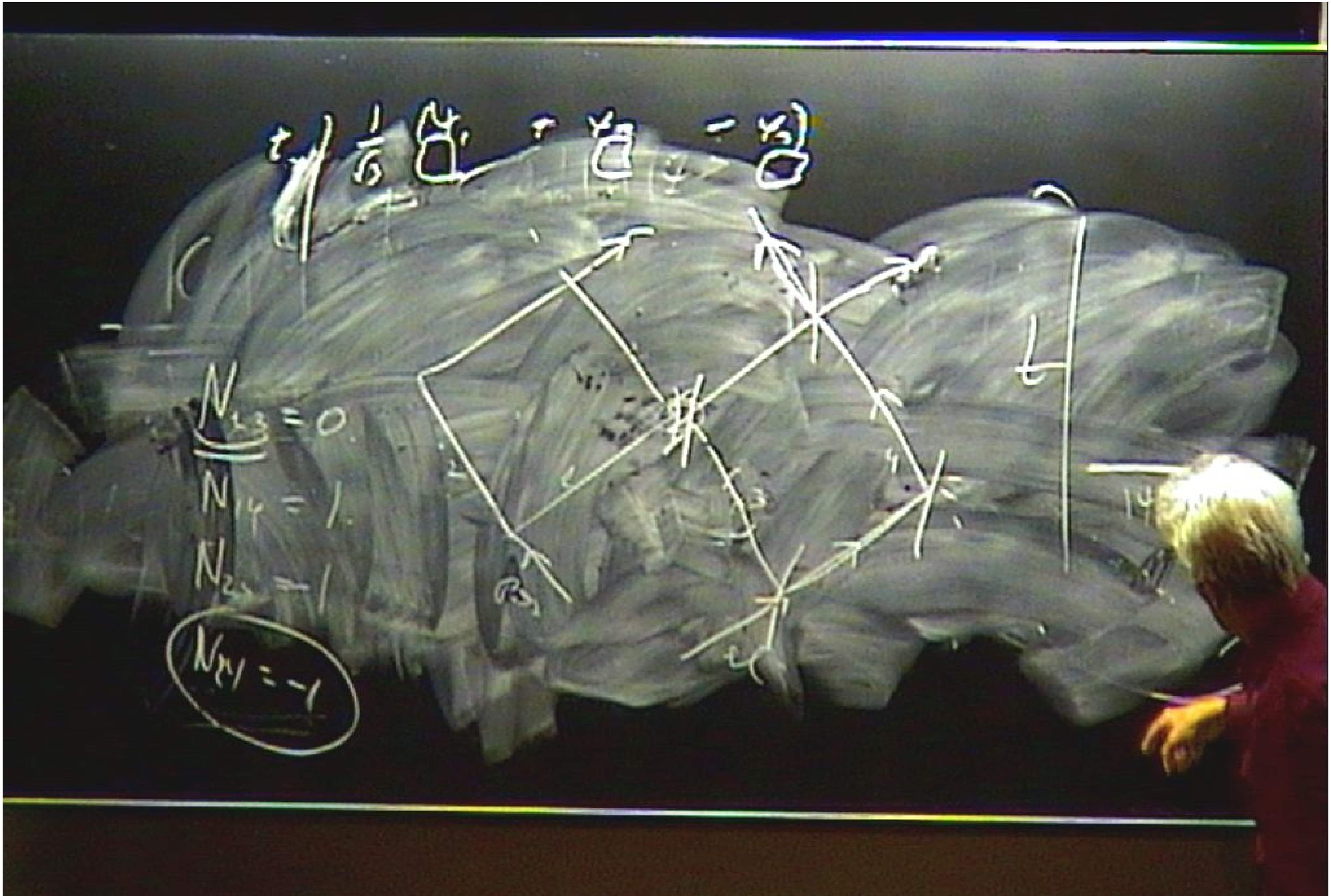
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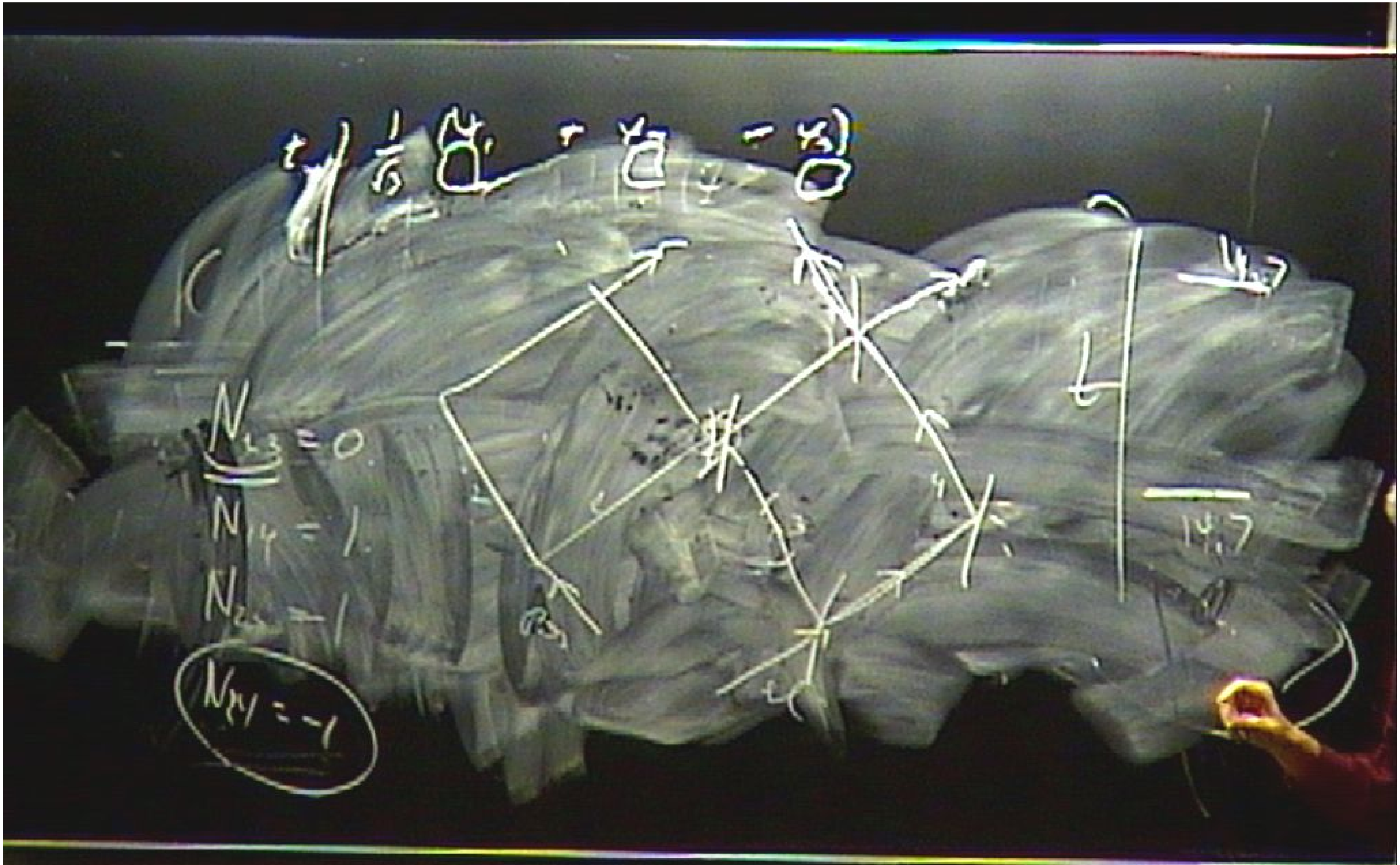
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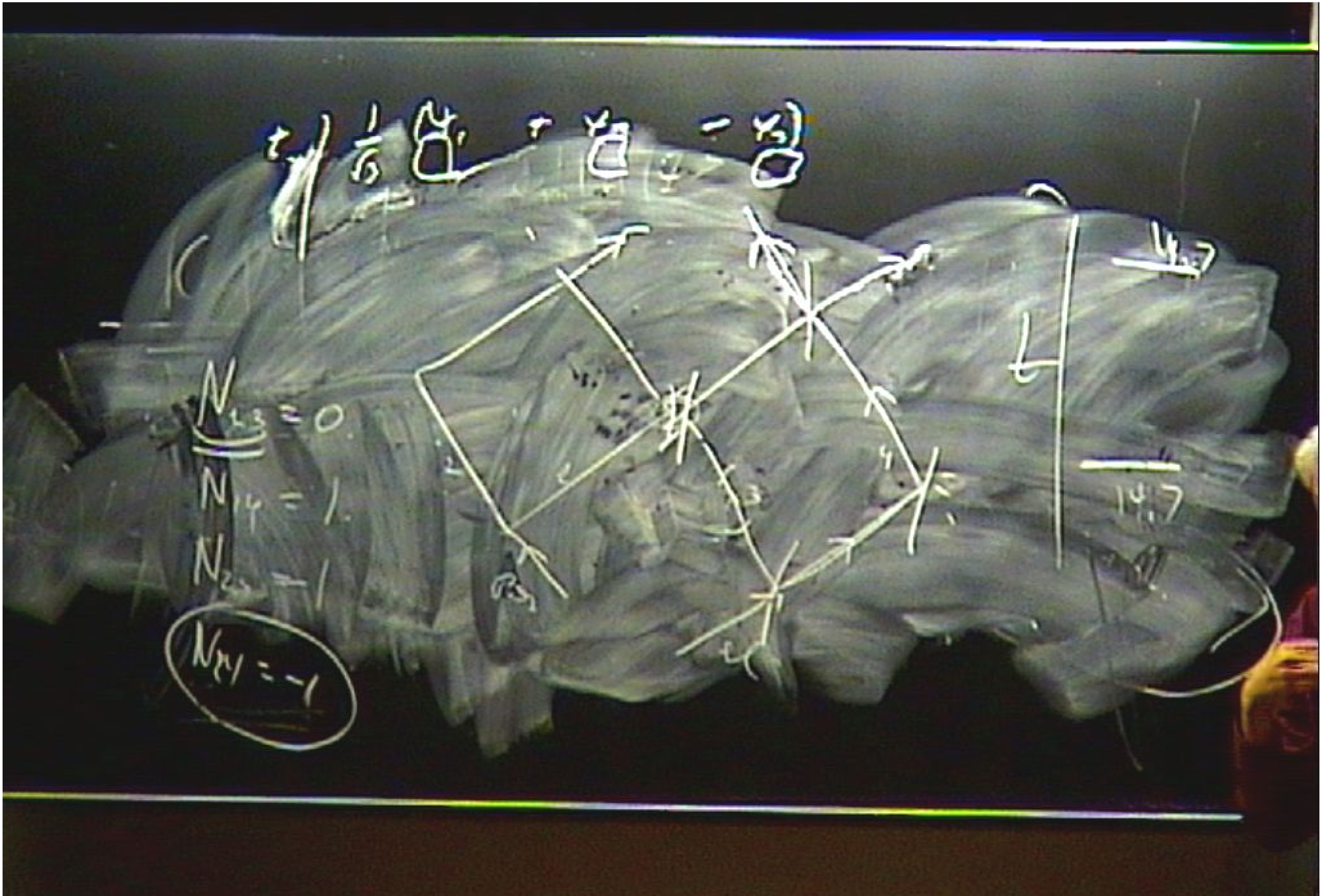
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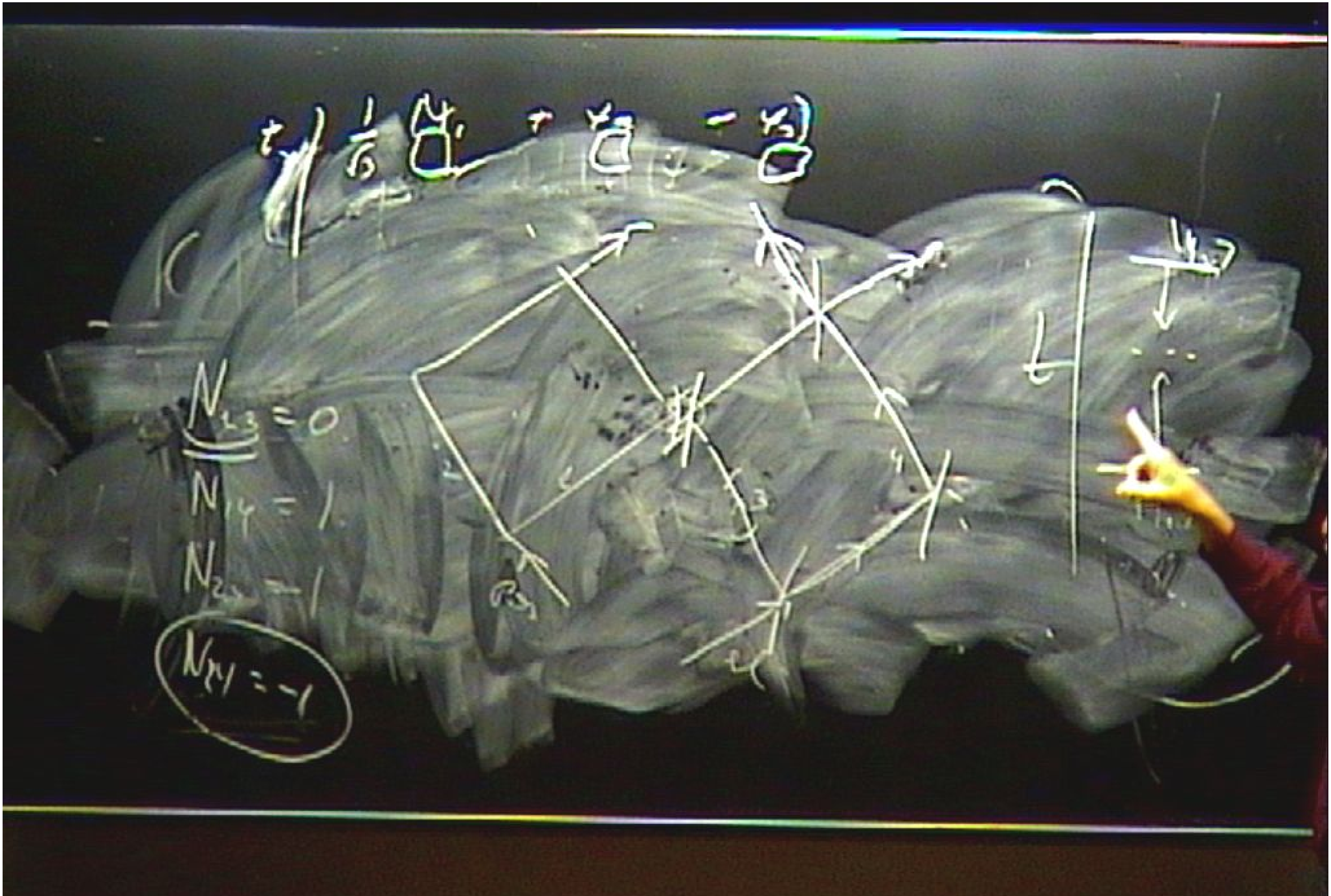
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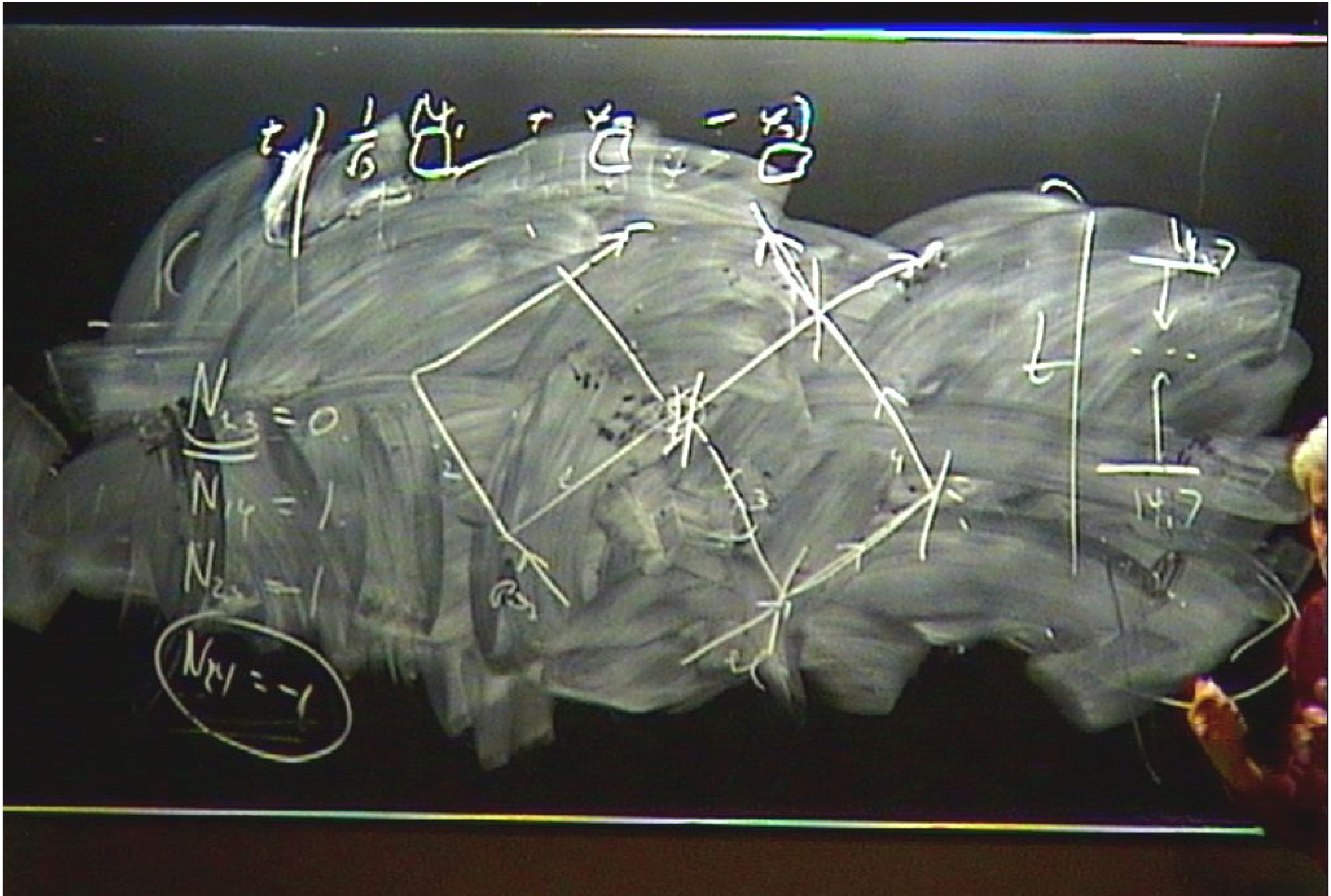

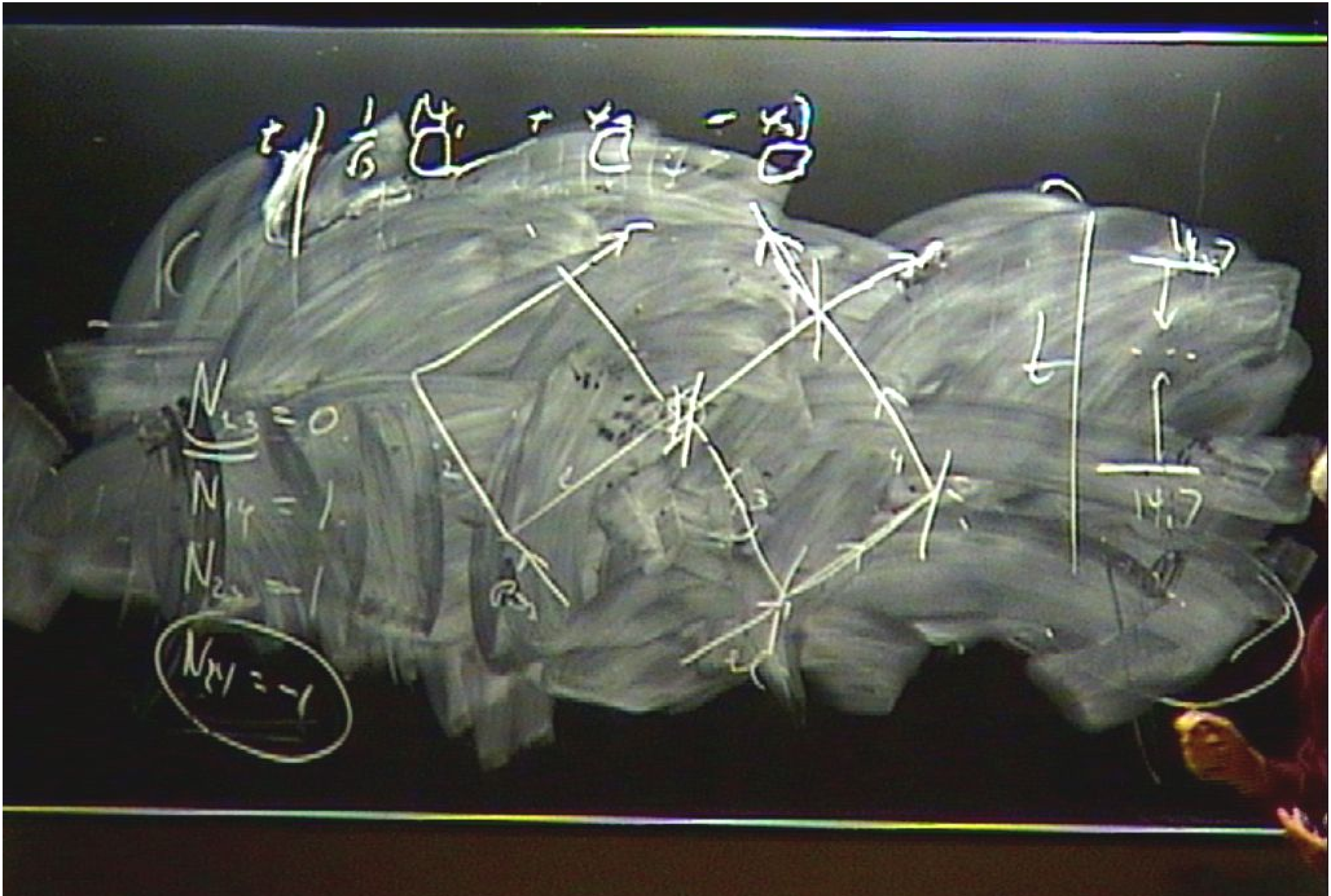
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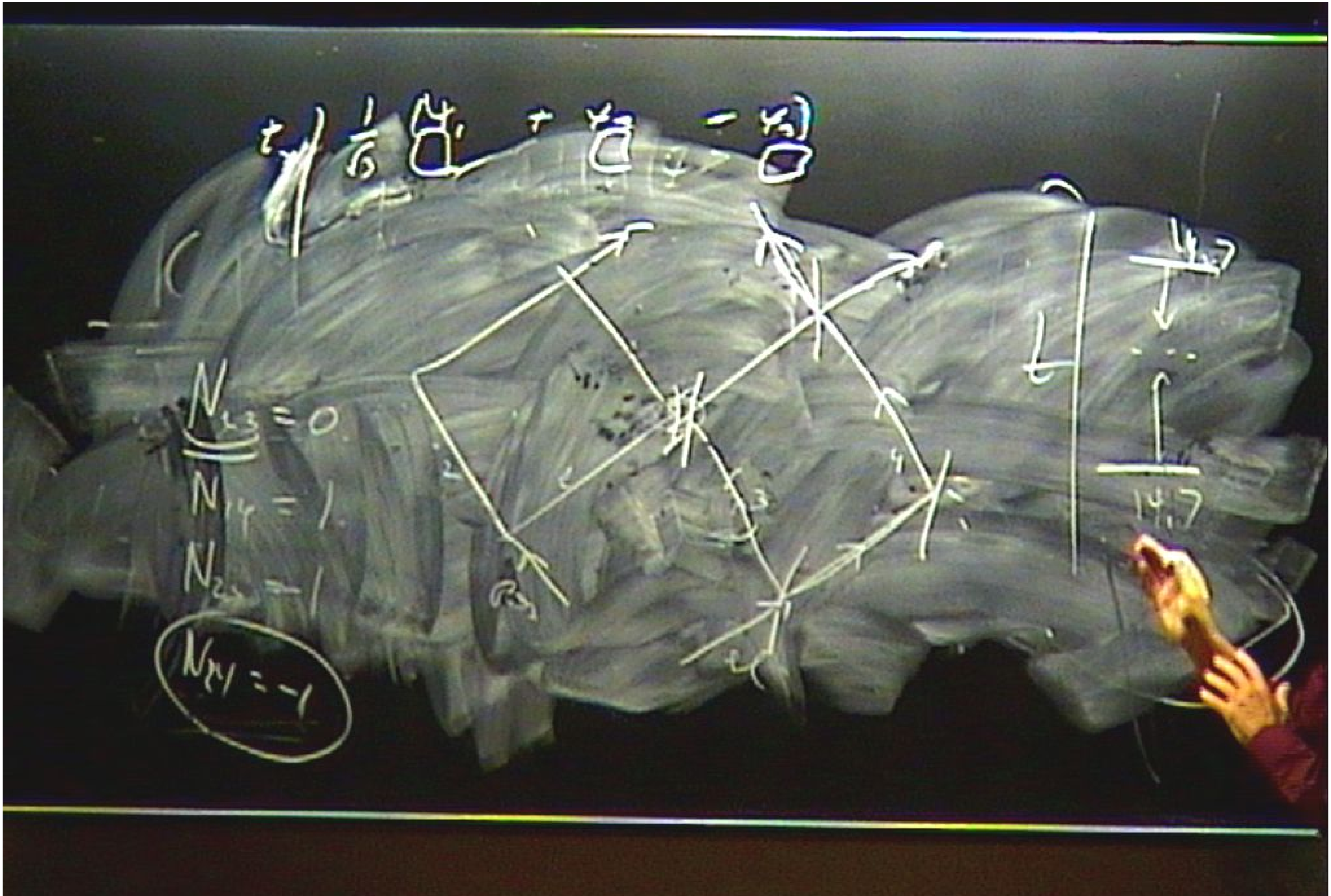
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