Pronouncing Mathematics and Chemical Compounds

Pronouncing a mathematical equation can be difficult; even if it is done correctly, half the people will misunderstand anyway if they hear it without seeing it. The same thing applies to chemical reaction equations and even chemical compounds that have more than six symbols – they're just too complicated to understand by hearing alone.

Principle 1: Point to a written version the audience can see on a slide.

Principle 2: Refer to it as "this equation" (or "this compound" for a chemical formula). If it will be referred to later, give it a label ("Equation 3") or a name ("the potential equation", "Ohm's Law"). It is a good idea to number the formulas on your slides (in the same way they're numbered in the paper) to give questioners a convenient way to refer to a particular formula. When presenting papers with a complicated compound in the title, speakers often refer to "the title compound".

Principle 3: If you need to discuss details of the equation, refer to its parts: exponent, divisor, dividend, numerator, denominator, left side, right side, top, bottom, term, factor, coefficient, ... ("In the denominator of the second term of this expression, the coefficient indicates…")

Pronunciation:

- x^2 "squared", x^3 "cubed" / "to the third" / "to the power of 3", x^4 "to the fourth" / "to the power of 4"
- Complicated exponent (not just a positive number)? 2^{5x+y^3} say "to the" then say the exponent normally "2 to the 5 x plus y cubed".
- Negative exponent? 2^{-5} is "2 to the minus fifth" or "2 to the minus five".
- x_5 "x 5" or "x sub 5", x_n "sub n", x_{i+1} "sub i plus 1"
- x' "x prime", x'' "x double prime", $\bar{x}$ "x bar", $\hat{x}$ "x hat", $\vec{x}$ "vector x"
- $\sqrt{x}$ "root x", $\sqrt[3]{x}$ "cube root of x" or "third root of x", $\sqrt[i]{x}$ "i'th root of x"
- $\log x$ "log x", $\log_2 x$ "log base 2 of x", $\ln x = \log_e x$ "lawn x"
- $\frac{\mathrm{d}f}{\mathrm{d}x}$ "dee f by dee x" or "derivative with respect to x", $\int f(x)\,\mathrm{d}x$ "integral [of f] over x"
- "over" (indicates start of denominator), "all over" (indicates start of denominator when the numerator is complicated, e.g. ends with an exponent or a bracket)
- 30 x 50 grid "thirty **by** fifty", 2 x 3 matrix e.g. $\begin{bmatrix} 5 & 3 & 4 \\ 1 & 9 & 7 \end{bmatrix}$ "two **by** three", 5:7 ratio "five **to** seven"
- $\sum k$ "sum", $\sum_{i=0}^{n} i$ "the sum from i=0 to n of...", $\prod_{i=1}^{n} i$ "product", $\otimes$ cross-product
- = "**equals**" or "**is equal to**" (but NOT "~~**equals to**~~"); $\approx$ "is approximately"
- Greek: α alpha, β beta, γ gamma, $\delta\,\Delta$ delta, ε epsilon, η eta (8-a), $\theta\,\Theta$ theta (th8-a), $\lambda\,\Lambda$ lambda, μ mu (myew), ξ xi (zai), $\pi\,\Pi$ pi (pai), ρ rho (row), $\sigma\,\Sigma$ sigma, τ tau (tao), ϕ phi (fai), χ chi (kai), $\psi\,\Psi$ psi (sai), $\omega\,\Omega$ o<u>meg</u>a (oh-MEI-ga)

0.1307	"zero point one three oh seven"
21.25	"twenty-one point two five" (not "~~twenty-one point twenty-five~~")
32.5×10^{12}	"thirty-two point five **times** ten to the twelfth / to the [power of] twelve"
11×10^{-9} cm^2	"eleven times ten to the minus ninth square centimeters" / "…minus nine…"
144 kg·m^{-3}	"one hundred [and] forty-four kilograms per cubic meter"

Note: When *talking* about figures, do **not** pronounce "Fig." as "fig". Instead, say "this figure" or "Figure 3". ("Fig." is a short form used only for *writing*.) Similarly, say "table" (not "tab") for "Tab.".