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# Lecture Series Title

Author One and  
Author Two



# Lecture Series Title

Author One and  
Author Two

## LECTURE 1 Lecture Name

### **This is an unnumbered first-level section head**

This is an example of an unnumbered first-level heading.

### **This is a Special Section Head**

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#### **1.1. This is a numbered first-level section head**

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##### **1.1.1. This is a numbered second-level section head**

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##### **This is an unnumbered second-level section head**

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1.1.1.1. *This is a numbered third-level section head.* This is an example of a numbered third-level heading.

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<sup>1</sup>The first author completed work on this lecture while at Department of Mathematics, Northeastern University, Boston, Massachusetts 02115.

**Current address:** Department of Mathematics and Statistics, Case Western Reserve University, Cleveland, Ohio 43403.

**E-mail address:** xyz@math.ams.org.

<sup>2</sup>The second author completed work on this lecture while at Mathematical Research Section, School of Mathematical Sciences, Australian National University, Canberra ACT 2601, Australia.

*This is an unnumbered third-level section head.* This is an example of an unnumbered third-level heading.

**Lemma 1.1.** *Let  $f, g \in A(X)$  and let  $E, F$  be cozero sets in  $X$ .*

- (1) *If  $f$  is  $E$ -regular and  $F \subseteq E$ , then  $f$  is  $F$ -regular.*
- (2) *If  $f$  is  $E$ -regular and  $F$ -regular, then  $f$  is  $E \cup F$ -regular.*
- (3) *If  $f(x) \geq c > 0$  for all  $x \in E$ , then  $f$  is  $E$ -regular.*

The following is an example of a proof<sup>3</sup>.

**Proof.** Set  $j(\nu) = \max(I \setminus a(\nu)) - 1$ . Then we have

$$\sum_{i \notin a(\nu)} t_i \sim t_{j(\nu)+1} = \prod_{j=0}^{j(\nu)} (t_{j+1}/t_j).$$

Hence we have

$$(1.1) \quad \prod_{\nu} \left( \sum_{i \notin a(\nu)} t_i \right)^{|a(\nu-1)| - |a(\nu)|} \sim \prod_{\nu} \prod_{j=0}^{j(\nu)} (t_{j+1}/t_j)^{|a(\nu-1)| - |a(\nu)|} \\ = \prod_{j \geq 0} (t_{j+1}/t_j)^{\sum_{j(\nu) \geq j} (|a(\nu-1)| - |a(\nu)|)}.$$

By definition, we have  $a(\nu(j)) \supset c(j)$ . Hence,  $|c(j)| = n - j$  implies (5.4). If  $c(j) \notin a$ ,  $a(\nu(j))c(j)$  and hence we have (5.5).  $\square$

This is an example of an extract. The magnetization  $M_0$  of the Ising model is related to the local state probability  $P(a) : M_0 = P(1) - P(-1)$ . The equivalences are shown in Table 1.

**Table 1**

	$-\infty$	$+\infty$
$f_+(x, k)$	$e^{\sqrt{-1}kx} + s_{12}(k)e^{-\sqrt{-1}kx}$	$s_{11}(k)e^{\sqrt{-1}kx}$
$f_-(x, k)$	$s_{22}(k)e^{-\sqrt{-1}kx}$	$e^{-\sqrt{-1}kx} + s_{21}(k)e^{\sqrt{-1}kx}$

**Definition 1.2.** This is an example of the definition style. For  $f \in A(X)$ , we define

$$(1.2) \quad \mathcal{Z}(f) = \{E \in Z[X] : f \text{ is } E^c\text{-regular}\}.$$

**Remark 1.3.** This is an example of the remark style. For  $f \in A(X)$ , we define

$$(1.3) \quad \mathcal{Z}(f) = \{E \in Z[X] : f \text{ is } E^c\text{-regular}\}.$$

**Example 1.4.** This is an example of the example style. For  $f \in A(X)$ , we define

$$(1.4) \quad \mathcal{Z}(f) = \{E \in Z[X] : f \text{ is } E^c\text{-regular}\}.$$

**Exercise 1.5.** This is an example of the xca environment. This environment is used for exercises which occur within a section.

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<sup>3</sup>Here is an example of a footnote. Notice that this footnote text is running on so that it can stand as an example of how a footnote with separate paragraphs should be keyed.

And here is the beginning of the second paragraph.

**Figure 1.** This is an example of a figure caption.

**Figure 2**

Some preceding text before the `xcb` head. The `xcb` environment is used for exercises that occur at the end of a paper.

### Exercises

- (1) First item. In the case where in  $G$  there is a sequence of subgroups

$$G = G_0, G_1, G_2, \dots, G_k = e$$

such that each is an invariant subgroup of  $G_i$ .

- (2) Second item. Its action on an arbitrary element  $X = \lambda^\alpha X_\alpha$  has the form

$$(1.5) \quad [e^\alpha X_\alpha, X] = e^\alpha \lambda^\beta [X_\alpha X_\beta] = e^\alpha c_{\alpha\beta}^\gamma \lambda^\beta X_\gamma,$$

- (a) First subitem.

$$-2\psi_2(e) = c_{\alpha\gamma}^\delta c_{\beta\delta}^\gamma e^\alpha e^\beta.$$

When the form  $\psi_1(e)$  is not zero, the expression on the right-hand side of this equation can be written in the form:

- (b) Second subitem.

- (i) First subsubitem. In the case where in  $G$  there is a sequence of subgroups

$$G = G_0, G_1, G_2, \dots, G_k = e$$

such that each subgroup  $G_{i+1}$  is an invariant subgroup of  $G_i$ .

- (ii) Second subsubitem.

- (c) Third subitem.

- (3) Third item.

**Theorem 1.6.** *Here is an example of a theorem.*

**Theorem 1.7** (Marcus Theorem). *Here is an example of a theorem with the theorem name printed also.*

## 1.2. Extra list types provided in L<sup>A</sup>T<sub>E</sub>X

There are two list types in L<sup>A</sup>T<sub>E</sub>X that are not provided in  $\mathcal{A}\mathcal{M}\mathcal{S}$ -T<sub>E</sub>X: a bulleted list and a ‘description’ list. Since they are sometimes used by L<sup>A</sup>T<sub>E</sub>X authors, some simple straightforward specs have been implemented for these lists. This is a temporary measure, until more formal specs can be drawn up.

**1.2.1. A bulleted list**

This is an example of a bulleted list.

- $\mathcal{J}_g$  of dimension  $3g - 3$ ;
- $\mathcal{E}_g^2 = \{\text{Pryms of double covers of } C = \square \text{ with normalization of } C \text{ hyperelliptic of genus } g - 1\}$  of dimension  $2g$ ;
- $\mathcal{E}_{1,g-1}^2 = \{\text{Pryms of double covers of } C = \square_{P^1}^H \text{ with } H \text{ hyperelliptic of genus } g - 2\}$  of dimension  $2g - 1$ ;
- $\mathcal{P}_{t,g-t}^2$  for  $2 \leq t \leq g/2 = \{\text{Pryms of double covers of } C = \square_{C''}^{C'} \text{ with } g(C'') = t - 1 \text{ and } g(C') = g - t - 1\}$  of dimension  $3g - 4$ .

**1.2.2. A ‘description’ list**

This is an example of a description list.

**Zero case:**  $\rho(\Phi) = \{0\}$ .

**Rational case:**  $\rho(\Phi) \neq \{0\}$  and  $\rho(\Phi)$  is contained in a line through 0 with rational slope.

**Irrational case:**  $\rho(\Phi) \neq \{0\}$  and  $\rho(\Phi)$  is contained in a line through 0 with irrational slope.

In the zero case we have (a) of the Theorem. In the rational case we have either (a) or (b) of the Theorem. Therefore it remains to investigate the irrational case.

## LECTURE 2

### Lecture Name

#### **This is an unnumbered first-level section head**

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#### **This is a Special Section Head**

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#### **2.1. This is a numbered first-level section head**

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#### **2.1.1. This is a numbered second-level section head**

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2.1.1.1. *This is a numbered third-level section head.* This is an example of a numbered third-level heading.

*This is an unnumbered third-level section head.* This is an example of an unnumbered third-level heading.





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