

WITT VECTORS, FOLIATIONS, AND ABSOLUTE DE RHAM COHOMOLOGY

**November
22-26, 2010**

Nagoya University, Nagoya, Japan



Information <http://math.mit.edu/~kedlaya/conference2010/>

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Witt vectors, foliations, and absolute de Rham cohomology

- Period:** November 22–November 26, 2010
- Place:** Graduate School of Mathematics (Nov. 22, 23)
Toyoda Auditorium (Nov. 24–26)
Nagoya University
Nagoya, Japan
- Organizers** James Borger (Australian National University),
Lars Hesselholt (Nagoya University),
Kiran Kedlaya (MIT/UCSD; *chair*)

PROGRAM

November 22 (Mon)

Talks in Science Building 1, Room 509 (理1号館 (多元) 509号室).

9:30–9:55 (REGISTRATION)

9:55– (OPENING)

10:00–11:00 *Kiran Kedlaya (MIT/UCSD)*
Absolute de Rham cohomology?

break

11:30–12:30 *Michael Temkin (Hebrew University of Jerusalem)*
Nonarchimedean analytic spaces

lunch

15:00–16:00 *Jean-Marc Fontaine (Université de Paris-Sud 11)*
 p -adic Hodge theory, part 1

break

16:30–17:30 *Stephen Lichtenbaum (Brown University)*
Weil-étale cohomology

November 23 (Tue)

Talks in Science Building 1, Room 509 (理1号館(多元)509号室).

9:30–10:30 **Vladimir Berkovich** (*Weizmann Institute of Science*)

Analytic spaces over \mathbb{F}_1 , part 1

break

11:00–12:00 **Clark Barwick** (*MIT*)

A homotopical perspective on the de Rham-Witt complex

lunch

15:00–16:00 **Jan Stienstra** (*Universiteit Utrecht*)

Algebraic cycles, branes, and de Rham-Witt

break

16:30–17:30 **Laurent Fargues** (*Université de Paris-Sud 11*)

p -adic Hodge theory, part 2

November 24 (Wed)

Morning talks in Toyoda Auditorium, Symposium Hall (豊田講堂シンポジオン・ホール).

Afternoon talks in Toyoda Auditorium, Conference Room 1 (豊田講堂第1会議室).

Dinner in Green Salon Higashiyama (グリーンサロン東山)

9:30–10:30 **Vladimir Berkovich** (*Weizmann Institute of Science*)

Analytic spaces over \mathbb{F}_1 , part 2

break

11:00–12:00 **Alain Connes** (*Collège de France*)

The arithmetic curve, Witt vectors, and zeta (Department Colloquium)

lunch

15:00–16:00 **Alain Connes** (*Collège de France*)

Foliated spaces

break

16:30–17:30 **Takeshi Saito** (*University of Tokyo*)

Wild ramification of schemes and sheaves

Conference dinner (18:00–20:00)

November 25 (Thu)

Talks in Toyoda Auditorium, Conference Room 1 (豊田講堂第1会議室).

9:30–10:30 **Christopher Deninger** (*Universität Münster*)

Cohomology of foliations, part 1

break

11:00–12:00 **Vladimir Berkovich** (*Weizmann Institute of Science*)

Analytic geometry over \mathbb{F}_1 , part 3

lunch

15:00–16:00 **Christopher Deninger** (*Universität Münster*)

Cohomology of foliations, part 2

break

16:30–17:30 **Ruochuan Liu** (*Institute for Advanced Study/University of Michigan*)

Relative p -adic Hodge theory

November 26 (Fri)

Talks in Toyoda Auditorium, Conference Room 1 (豊田講堂第1会議室).

9:30–10:30 **Baptiste Morin** (*California Institute of Technology*)

Deninger's dynamical system, Weil-étale cohomology and zeta functions at $s = 0$

break

11:00–12:00 **Vadim Vologodsky** (*University of Oregon*)

Motivic integral of K3 surfaces over a non-archimedean field

INFORMATION

Welcome to Nagoya. We hope the following information will help you enjoy your stay during the conference. Please feel free to contact Prof. Hesselholt and/or Ms. Kozaki if you have any question or if you encounter unexpected trouble.

• How to get cash

Please note that most ATM machines in Japan accept only cards issued by Japanese banks. Accordingly, **easy access to cash is somewhat limited**. On the other hand, it is perfectly safe to carry large amounts of cash and to leave it in your hotel room. There are three CIRRUS ATM machines operated by Citibank: One is in the Access Plaza at Centrair Airport, where also ticket counters for train tickets are located; another is at Nagoya Station; and yet another is in the downtown Sakae area (see Figure E). Another possibility is to bring foreign currency in cash and change it to Japanese yen. This is best done at one of the bank branches which you encounter immediately after clearing customs at the airport. The rates offered by the airport bank branches are quite good and much better than the rates found at the currency exchange stalls at the airport.

• Travel from Airport

Travel from Airport to Nagoya station: From Nagoya Centrair airport, take the μ SKY train to Nagoya station. The train runs about three times an hour and the fare is 1,200 yen. Nagoya station is the third stop.

From Tokyo Narita airport, take JR Narita Express to Tokyo station and then Tokaido Shinkansen from Tokyo station to Nagoya station. The combined ticket, which may be purchased at the JR ticket counter at the airport, is 13,490 yen. Narita Express arrives 4 floors underground at Tokyo station and the Shinkansen platform is at the second floor overground. There are signs everywhere and they are easy to follow. The Tokaido Shinkansen is marked with blue signs. To enter the Tokaido Shinkansen, you need to go through a wicket. But before you do that, you have to exchange the Narita-Tokyo part of the ticket for a special Shinkansen ticket. To do this, go to the ticket counter at the Shinkansen entrance; it should then happen more or less automatically. It is also possible to do this yourself at one of ticket machines. With the new ticket in hand, go through the wicket and board the train. Make sure to take a NOZOMI train, which is the fastest. Cars 1–3 are unreserved seats. The travel time to Nagoya is 1:42. Nagoya is the third stop.

From Osaka Kansai airport, take JR Haruka to Shin-Osaka station and then the Shinkansen from Shin-Osaka station to Nagoya station. The combined fare is 8,470 yen. The travel time for both trains is 52 minutes.

Travel from Nagoya station to hotel: Once at Nagoya station, go to the station exit labelled "Sakuradori Side." (See Figure D) From here there are two options, the first of which is take one of taxis waiting outside to the hotel. It is probably a good idea to print out the address to be able to show it to the driver:

ホテルトラスティ 名古屋

〒460-0003 名古屋市中区錦2丁目11番32号

TEL : 052-221-5511(代表) FAX : 052-218-1680

The other option is to take the subway. There are several subway lines running through Nagoya station. To get to the hotel, take the Higashiyama line, which is marked by yellow signs. There are two entrances, one on either side of where the taxis are waiting outside the Sakurada Side exit. The hotel

is close to Fushimi station, which is the first stop from Nagoya station in direction Fujigaoka. You can either buy a single use ticket or a multiple use Yukari card. A 2,200 yen card will last most of the week.

At Fushimi station, follow the signs to exit number 1. (In Japanese: 1番出口.) From there, it is a 300 m walk to the Hotel Trusty Nagoya.

• Subway

Travel between Nagoya Station and Fushimi Station, where the Hotel Trusty Nagoya is located, and between Fushimi Station and Nagoya Daigaku Station, where Nagoya University is located, is most easily done by subway. Prepaid multiple ride cards called Yurika may be purchased from machines at subway stations. A 2,200 yen card will last most of the week. Yurika cards may also be used at city buses. A valid ticket or a Yurika card is necessary both to enter and to exit the subway. More information is available at http://www.kotsu.city.nagoya.jp/english/english_sub.html.

• Facilities

a) Nov.22 & 23

The locations of the following rooms are indicated in Figure A.

Registration Desk (5F, in front of the lecture room)

Lecture Room (5F)

Lounge (5F)

Computer Space (5F)

Office of Academic Affairs (1F)

Nov.24 – 26

The locations of the following rooms are indicated in Figure B.

Registration Desk (3F, in front of the lecture room)

Lecture Room (3F)

Lounge (3F)

Computer Space (3F)

- b) Coffee, tea, and water are available in the lounge.
- c) The building is a smokefree building. Please refrain from smoking inside.
- d) To make copies please ask at the Office of Academic Affairs (Figure A 1F).
- e) An overhead projector/an overhead camera/a video projector is available for lectures. Transparent sheets and pens for overhead projectors are available at the Office of Academic Affairs. In addition, the lecture room for Monday-Tuesday has large blackboards.
- f) For those who wish to read/send e-mail messages notebook computers are available in the Computer Space.

Wireless internet access is available in and around the lecture rooms. In the Graduate School of Mathematics, the MathGuest network can be used with a daily password available from the registration desk. In the Toyoda Auditorium and throughout campus, the nuwnet network can be used with individual guest login and password available at the registration desk.

- g) For those who wish to use a seminar room, we have prepared rooms on the third floor in Toyoda Auditorium (Nov. 24–26).
- h) During the conference, office space is available for participants in the rooms A329 and A331 on the third floor of Science Building A. The rooms will be left unlocked. Valuables may be left at the Office of Academic Affairs.

• **Banquet and Restaurants**

Banquet: A banquet is scheduled on the evening of November 24th (Wed) from 18:00–20:00 at Restaurant "Hananoki" (Figure C). All participants are welcome. There is 2,000 fee to cover alcohol (free for Postdocs and graduate students). Please sign up for the dinner by 16:30 on November 22nd (Mon) at the registration desk of the conference.

Restaurants: For lunch and dinner, there is a variety of restaurants on campus and near the university. (See Figure F.) For dinner, downtown restaurants are perhaps a better option. A number of restaurants located close to Hotel Trusty Nagoya are indicated on Figure D. Credit cards may be used for payments at the restaurants indicated on Figure D.

• **Group photo**

We will take a group photo of all participants in front of the Toyoda Auditorium (Figure B) at the end of Wednesday's morning session. (In case of rain, the group photo will be taken the next day.)

Map around Lecture Rooms

• Floor Map of Bldg. Sci. 1 (November 22–23)

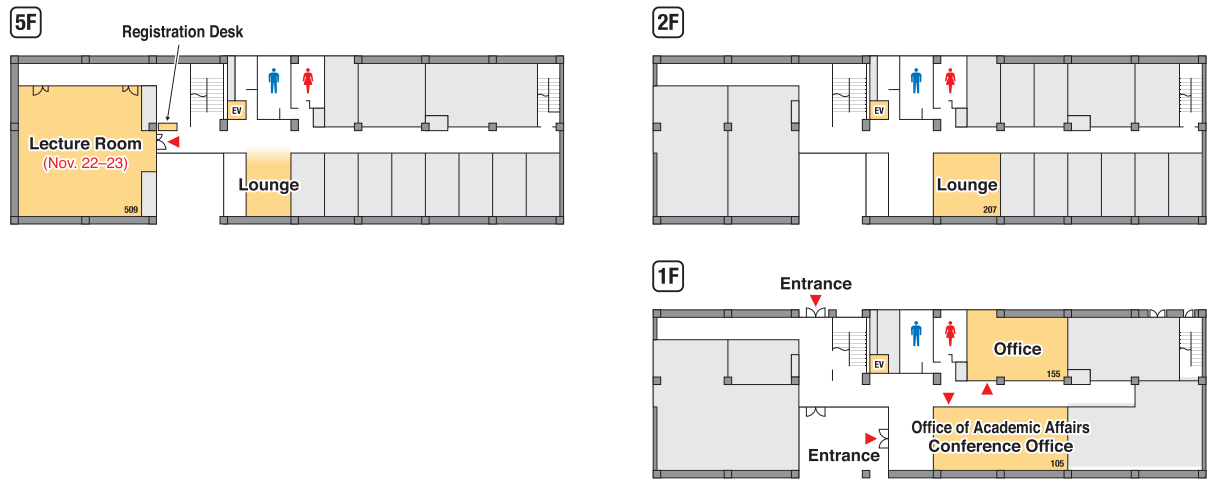


Figure A

• Toyoda Auditorium (November 24–26)

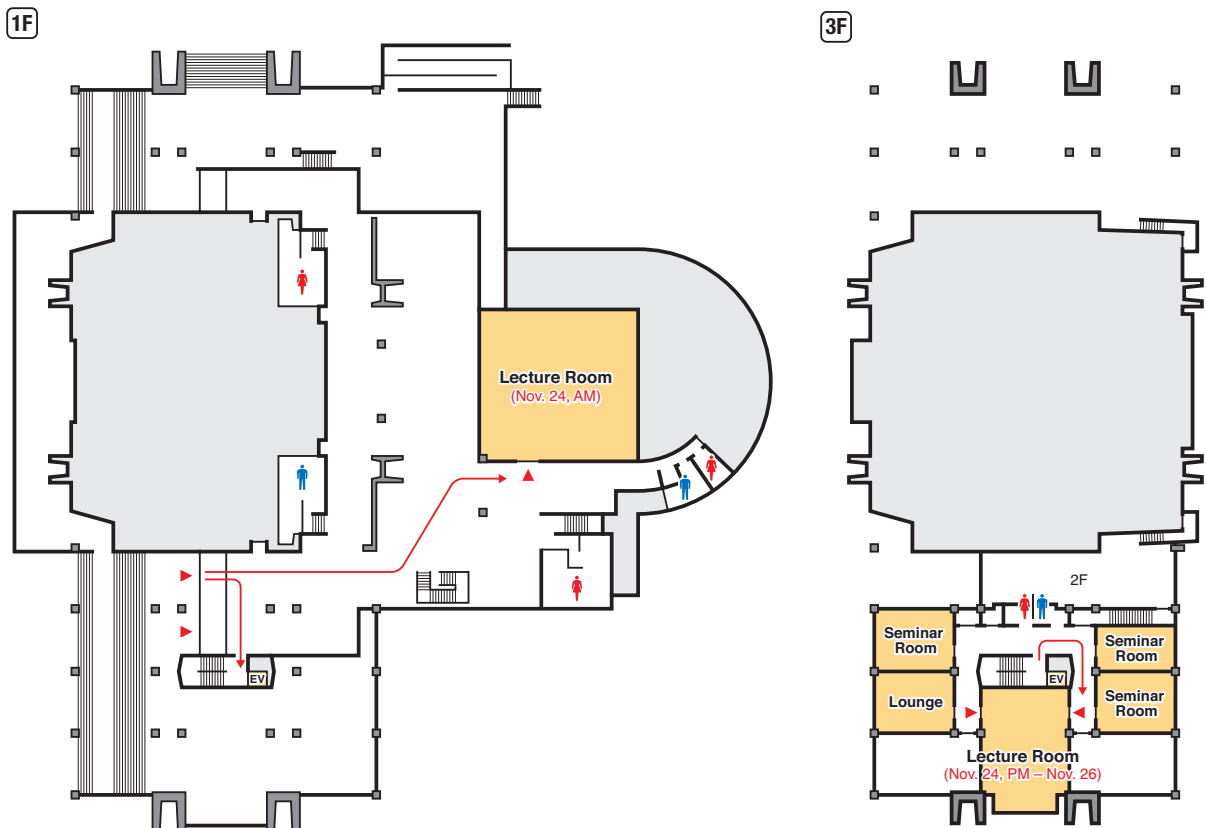


Figure B

Campus Map of Nagoya University

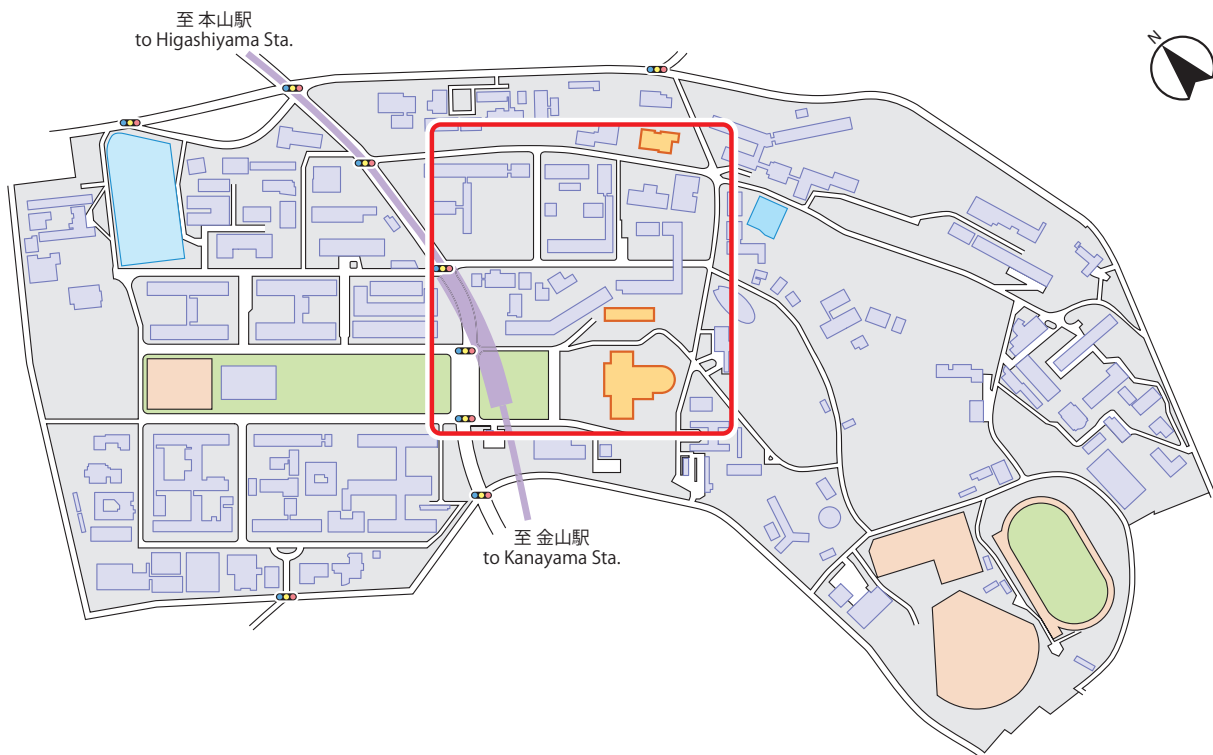


Figure C (1/2)

● Close Up of Campas Map

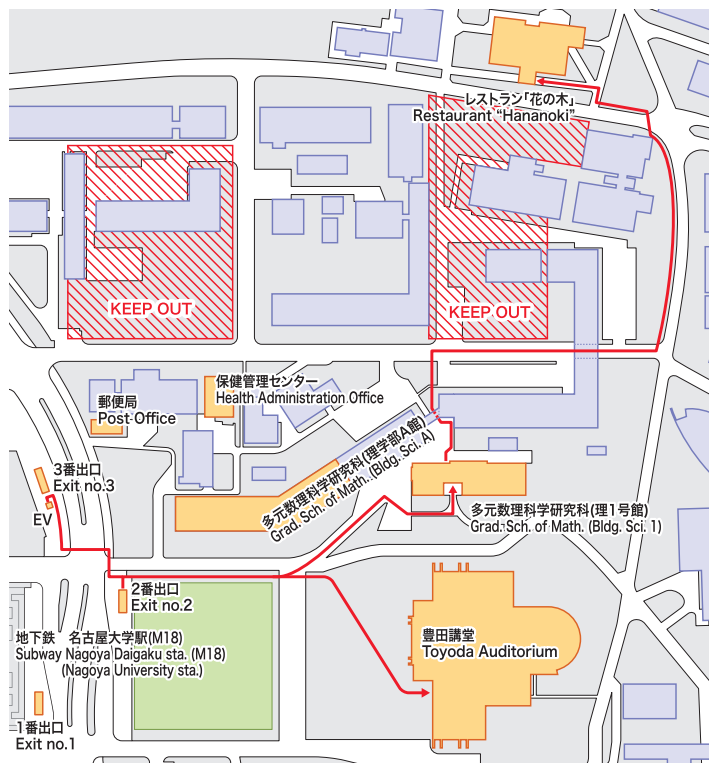


Figure C (2/2)

Map around the Hotel

● Hotel Trusty Nagoya



- ① 鳥栄 / Torien (鳥料理/Chicken)
- ② 鉄板焼 まるみ 伏見店 / Narumi, Fushimi branch (鉄板焼/Tavern)
- ③ 昭和ろばた焼き 奥志摩 伏見店 / Okushima, Fushimi branch (居酒屋/Tavern)
- ④ 広小路キッチンマツヤ / Kitchen Matsuya (洋食/Western)
- ⑤ 世界の山ちゃん 長者町店 / Sekai no Yamachan, Chōja-machi branch (居酒屋/Tavern)
- ⑥ 赤から 栄店 / Akakara, Sakae branch (居酒屋/Tavern)
- ⑦ いば昇 / Ibashō (うなぎ/Eel)
- ⑧ アクバル / Akbar (カレー/Curry)
- ⑨ 山本屋本店 栄本町通店 / Yamamotoya Honten, Sakae Hon-machi branch (味噌煮込うどん/ Udon)
- ⑩ 矢場とん LACHIC店 / Yabaton, Lachic branch (味噌カツ/ Nagoya style cutlet)

- VISA/MASTER/JCB/AMEX ☎ 052-241-5552
- VISA/MASTER/JCB/DC/AMEX ☎ 050-5816-8463
- VISA/MASTER/JCB/DC/AMEX ☎ 052-220-2030
- VISA/MASTER/JCB/AMEX ☎ 052-201-2082
- VISA/MASTER/JCB/DC/AMEX ☎ 052-232-1771
- VISA/MASTER ☎ 050-5831-0549
- cash only** ☎ 052-951-1166
- VISA/MASTER/JCB/DC ☎ 052-261-0986
- VISA/MASTER/JCB/AMEX ☎ 052-201-4082
- VISA/MASTER ☎ 052-269-7070

Figure D

- Mitsukoshi, Maruei, MELSA and LACHIC are department stores.

ATM locations (citibank)

• at Central Japan International Airport

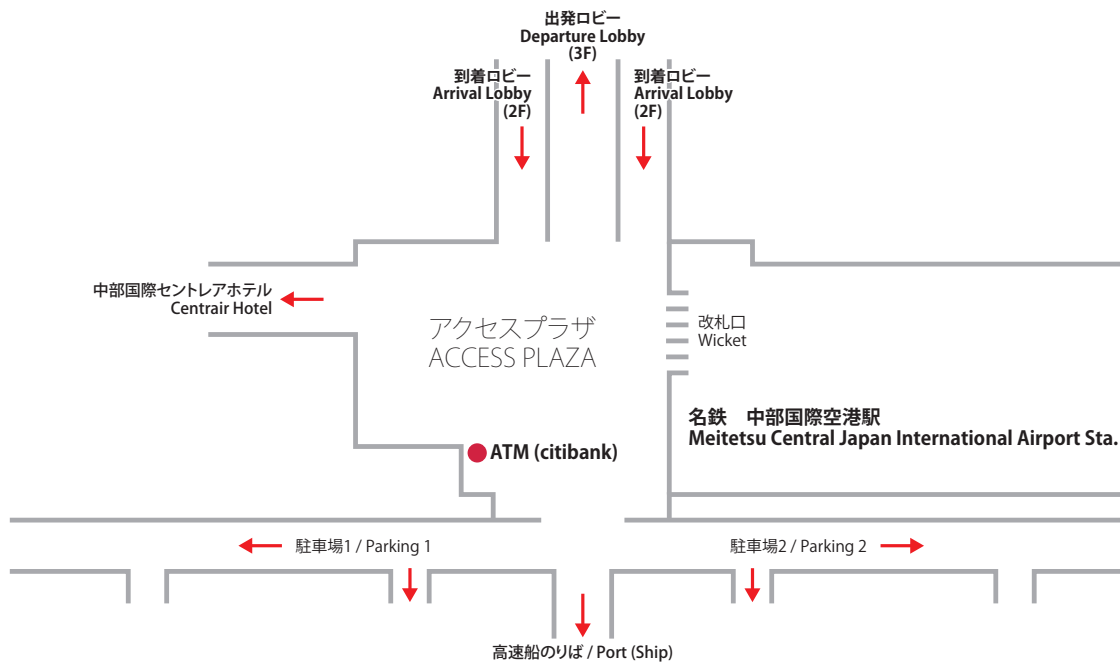


Figure E (1/2)

• at JR Nagoya Station

Nagoya Station mini branch

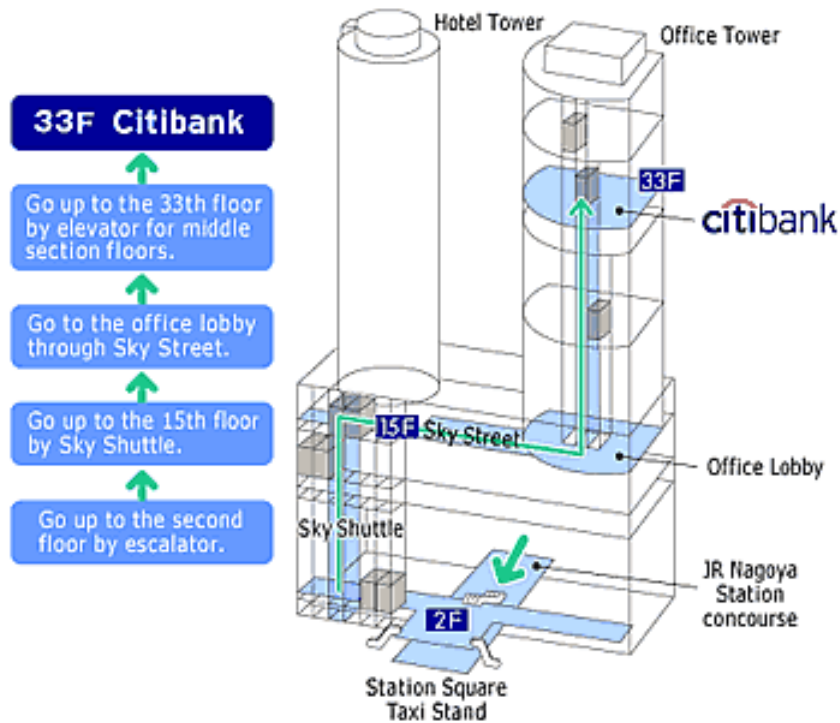


Figure E (2/2)

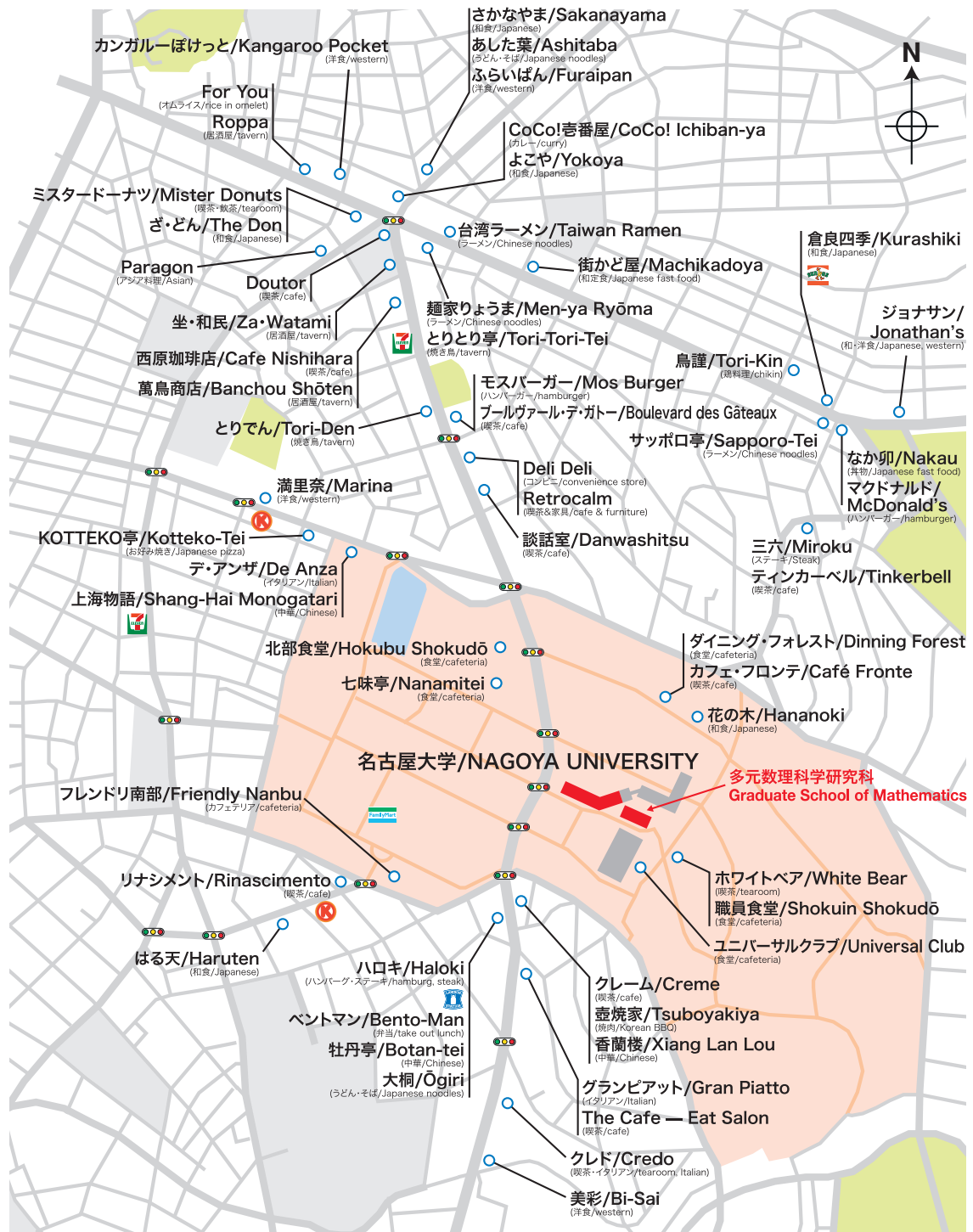
• at Sakae

Nagoya branch

For location of the branch, see the previous page (Map around the Hotel). The ATM in this branch is available 24 hours.

Cafeterias and Restaurants Map

September 2009



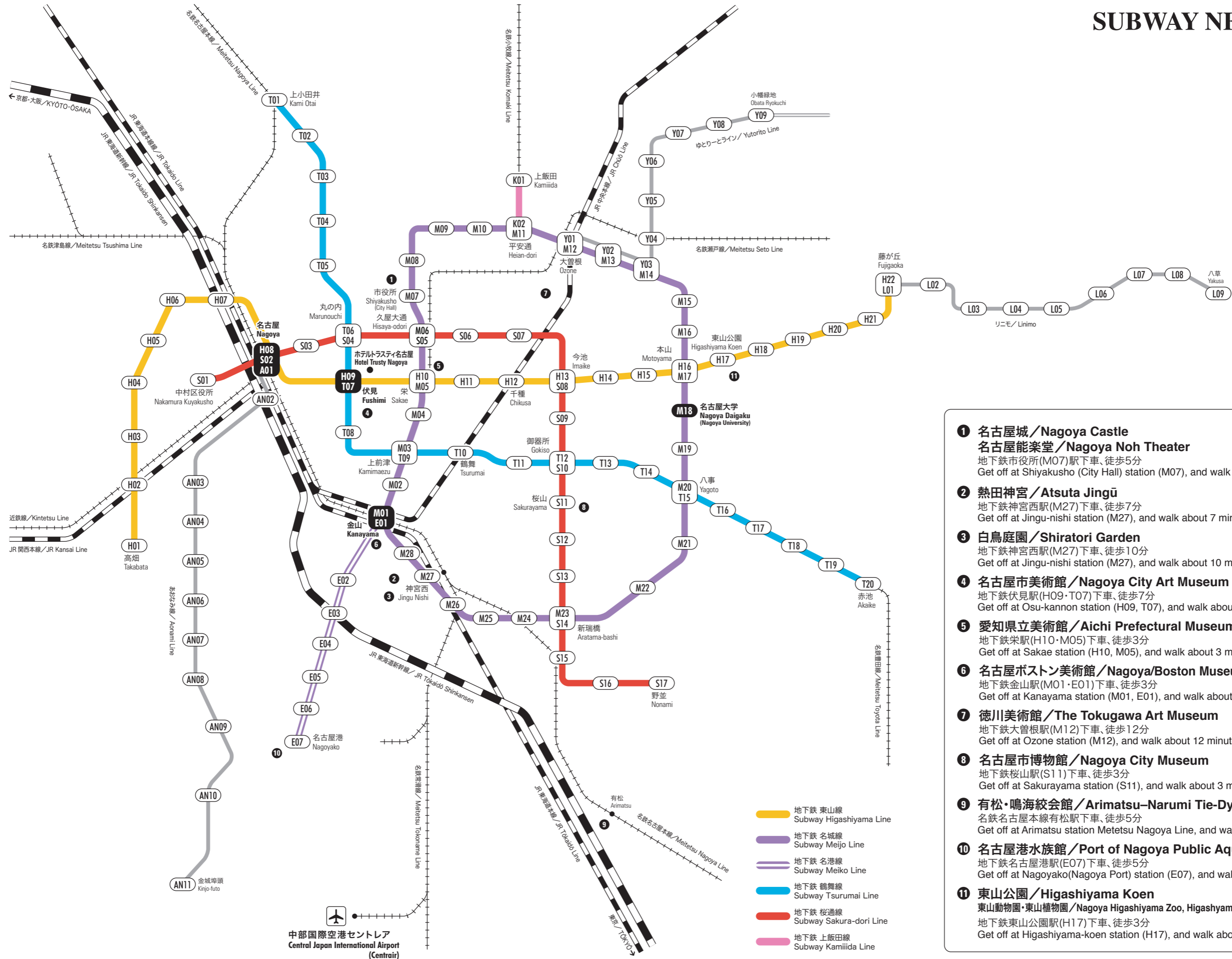
コンビニ/Convenience Store

- Circle K
- FamilyMart
- Lawson
- Seven Eleven
- Mini Stop
- Sunkus

※一部ランチタイムの営業をしていない店もあります。 / Some cafeterias, restaurants and taverns are not open for lunch.

Figure F

SUBWAY NETWORK



- 1 名古屋城 / Nagoya Castle**
名古屋能楽堂 / Nagoya Noh Theater
 地下鉄市役所(M07)下車、徒歩5分
 Get off at Shiyakusho (City Hall) station (M07), and walk about 5 minutes.
- 2 熱田神宮 / Atsuta Jingū**
 地下鉄神宮西駅(M27)下車、徒歩7分
 Get off at Jingu-nishi station (M27), and walk about 7 minutes.
- 3 白鳥庭園 / Shiratori Garden**
 地下鉄神宮西駅(M27)下車、徒歩10分
 Get off at Jingu-nishi station (M27), and walk about 10 minutes.
- 4 名古屋市美術館 / Nagoya City Art Museum**
 地下鉄伏見駅(H09・T07)下車、徒歩7分
 Get off at Osu-kannon station (H09, T07), and walk about 7 minutes.
- 5 愛知県立美術館 / Aichi Prefectural Museum of Art**
 地下鉄栄駅(H10・M05)下車、徒歩3分
 Get off at Sakae station (H10, M05), and walk about 3 minutes.
- 6 名古屋ボストン美術館 / Nagoya/Boston Museum of Fine Arts**
 地下鉄金山駅(M01・E01)下車、徒歩3分
 Get off at Kanayama station (M01, E01), and walk about 3 minutes.
- 7 徳川美術館 / The Tokugawa Art Museum**
 地下鉄大曽根駅(M12)下車、徒歩12分
 Get off at Ozone station (M12), and walk about 12 minutes.
- 8 名古屋市博物館 / Nagoya City Museum**
 地下鉄桜山駅(S11)下車、徒歩3分
 Get off at Sakurayama station (S11), and walk about 3 minutes.
- 9 有松・鳴海絞会館 / Arimatsu-Narumi Tie-Dyeing Museum**
 名鉄名古屋本線有松駅下車、徒歩5分
 Get off at Arimatsu station Metetsu Nagoya Line, and walk about 5 minutes.
- 10 名古屋港水族館 / Port of Nagoya Public Aqualium**
 地下鉄名古屋港駅(E07)下車、徒歩5分
 Get off at Nagoyako(Nagoya Port) station (E07), and walk about 5 minutes.
- 11 東山公園 / Higashiyama Koen**
東山動物園・東山植物園 / Nagoya Higashiyama Zoo, Higashiyama Botanical Gardens
 地下鉄東山公園駅(H17)下車、徒歩3分
 Get off at Higashiyama-koen station (H17), and walk about 3 minutes.

- 地下鉄 東山線
Subway Higashiyama Line
- 地下鉄 名城線
Subway Meiji Line
- 地下鉄 名港線
Subway Meiko Line
- 地下鉄 鶴舞線
Subway Tsurumai Line
- 地下鉄 桜通線
Subway Sakura-dori Line
- 地下鉄 上飯田線
Subway Kamiida Line

