STANDING in a back exhibition space at James Cohan Gallery in Chelsea, the Brazilian artist Beatriz Milhazes sounded like a rigorous Constructivist as she discussed her four latest paintings, which were propped against the walls.

“This one is based on squares, kind of a grid,” she said, pointing to “Mulatinho,” whose blocks of color are broken up by dots, rippling stripes, paisley like ornaments, stylized flowers and a piece of carefully painted fruit.

Mr. Cohan, her dealer, who had just walked into the room, started laughing. “You and Mondrian,” he said.

Although Ms. Milhazes clearly considers herself a geometric abstractionist, those are hardly the first words that spring to mind when regarding her work, the focus of a solo show at the gallery.

Squares often come laced with lines and dots, circles frequently mutate into eye-popping targets, and everything is laden with motifs that evoke the multilayered culture of her home, Rio de Janeiro. There are arabesques, roses and doily patterns, borrowed from Brazilian Baroque, colonial and folk art; flowers and plants inspired by the city’s botanical garden, which is next door to her studio; and thick wavy stripes — a nod to the undulating Op Art-inspired mosaic pavement that the Brazilian landscape designer Roberto Burle Marx created in 1970 for the promenade at Copacabana Beach.

Yet Ms. Milhazes, 48, maintains that her compositions are essentially geometric. “Sometimes I put the square behind,” she said, referring to the initial layer of the painting, “and I build up things on top of it. The squares may disappear, but they are still a reference for me to think about composition. And I’ve always been very loyal to my ideas.”

Today her career seems as jampacked as her paintings themselves. In addition to the show at James Cohan, which runs through Nov. 15, her first major career survey is on view at the Pinacoteca do Estado in São Paulo, Brazil. By early November, within a span of a month, three limited-edition projects — a tapestry, a textile design and an artist’s book — will have been issued. She has also just completed a new site-specific window installation for a show at the Museum of Contemporary Art Tokyo. (Sometime next year she will create a similar piece for the Winter Garden at the World Financial Center in New York.)

Then there is “Gamboa,” a sculptural installation that will be unveiled on Nov. 1 at Prospect.1, the contemporary-art biennial in New Orleans. Ms. Milhazes intends to transform one room of a 19th-century mint building into a shimmering chandelier hung with globes and flowers, all of which have been fabricated by workers at one of the many samba schools in Rio.

“It didn’t make any sense to organize a room with paintings,” Ms. Milhazes said of the project. “New Orleans was always about the vitality, the dancing and the music. So I link it — the carnival in New Orleans with the Carnaval in Rio. It will make this kind of dialogue between two cities.”

Growing up under the former military dictatorship in Brazil, Ms. Milhazes did not have access to the mainstream art world. Although Brazil has had an avant-garde art scene since the 1930s, opportunities for young artists in Rio were limited in the early 1980s, when she embarked on her career. Back then Latin American collectors typically focused on work from past eras. “We didn’t have any voice,” Ms. Milhazes said of her colleagues from that time.

For a young painter who longed to see the work of 20th-century masters like Mondrian and Matisse, the situation was especially arid. “Twenty-five years ago, if you didn’t travel, you never would see paintings,” she said. And today, she noted, painting is still only an undercurrent in Brazil’s art scene. “We have strong contemporary art,” she said, “but more in conceptualism and installation. So I am quite isolated here.”

But isolation also helped Ms. Milhazes develop her rather unusual working process. “You don’t have the history on your back,” she explained. She starts by painting with acrylic on sheets of plastic, working motif by motif, creating each image in reverse as if she were making a print.

Once a motif is dry she glues the painted side to the canvas, almost as if it were a decal, and then peels off the plastic to reveal a surface that looks handmade but is nearly unmarked by brushstrokes. Then she continues layering as if she were making a collage. When she developed this method in the late ’80s, she said, “it opened a huge door for me.”
The door opened further in 1992, when the Brazilian curator and critic Paulo Herkenhoff brought three Americans to Ms. Milhazes’s studio: Richard Armstrong, then a curator at the Carnegie Museum in Pittsburgh and now the incoming director of the Solomon R. Guggenheim Foundation in New York; Madeleine Grynsztejn, then a curator at the Art Institute of Chicago and now director of the Museum of Contemporary Art in Chicago; and Fred Henry, president of the Bohen Foundation, a nonprofit group that commissions new works of art.

Mr. Henry soon became a devoted collector, and Mr. Armstrong eventually invited Ms. Milhazes to participate in the 1995 Carnegie International. “That was the opening,” she said. Through the Carnegie, she met a New York dealer, Edward Thorp, who began showing her work in SoHo the next year. Her career quickly became multinational. Now she frequently shows in Europe, especially London, as well as in Latin America, Asia and New York.

Ms. Grynsztejn said Ms. Milhazes’s widespread appeal lies in the fact that she is a “global” artist — someone whose work is grounded in the international language of modernism while also firmly rooted in her own place and time. “What I really loved about the work,” she said, “was the way that it merged figuration and abstraction, and even decoration and craft, within the highly intellectual enterprise of formal abstraction.”

She was also fascinated by the strong echoes of local culture in Ms. Milhazes’s work. After leaving the studio, she recalled, “I remember very vividly that when we sat down to lunch, the plastic tablecloth that covered the restaurant tables had the same bright, busy patterns” as Ms. Milhazes’s paintings. Later that day she experienced another jolt of déjà vu while passing the ornamental facade of a Baroque church. At that point, she said, “I understood that that vernacular had infiltrated at a very high level into Beatriz’s work.”

Yet despite the Brazilian feel of her work, there is nothing else quite like it in Brazilian art, past or present, said Adriano Pedrosa, a curator in São Paulo who has known Ms. Milhazes for years. “She seems to have a quite close relationship with Brazilian art history,” he said, “but that’s because she’s appropriating things.”

He also sees her oeuvre as being related to Antropofagia, a Brazilian movement of the ’20s and ’30s whose name means cannibalism. Mr. Pedrosa described it as “this concept where the Brazilian native artist appropriates foreign elements and digests them to produce something personal and unique.”

In fact Ms. Milhazes often says her major influence is Tarsila, a Brazilian painter who came out of that movement, as well as Mondrian and Matisse.

“In the beginning,” she said, “I felt a connection between Spanish Latin American and Brazilian, which is more Portuguese: the Baroque churches, the costumes, the ruffles, things that have volume or a sculptural shape.”

But ultimately, she said, although she wanted to incorporate all those things into her work, “I wanted to put them together based on a geometric composition. Because at the end of the day, I was only interested in structure and order.”